# SURVIVAL

## ADVANCED

Australian
Air Training Corps
Cadet / Instructor Notes

2nd Edition, 1st April 1997

Amended 07 July 2001

# COMPULSORY SERVICE TRAINING (ADVANCED)

## SURVIVAL (SVA)

## (12 Periods)

### SVA 1 Survival Planning and Preparation AL: B Period(s): 1

a. Outline the major psychological and social stresses to which the individual is exposed in a survival situation.

b. State the causes and effects on individuals and groups of the following:

(1) Low morale
(2) Lack of purpose, goals or motivation
(3) Lack of self/group discipline
(4) Conflict between members
(5) Fear of the unknown
(6) Lack of success in completing tasks of significant survival value, and
(7) Sense of dispair, insecurity and hopelessness.

c. State the need for:

(1) Planning equipment requirements
(2) Prior knowledge of the terrain to be covered
(3) Consideration of weather forecasts and conditions, and
(5) Notification of estimated time of arrival at destination.

### SVA 2 Traps and Snares AL: B Period(s): 1

Describe the assembly of the following traps and snares:

a. Simple latch/pin and trigger

b. Platofrm

c. Pit

d. Figure 4 and Fish traps.

### SVA 3 Survival First Aid Awareness AL: B Period(s): 2

Describe the symptoms and basic treatment for:

a. Common injuries, cuts, bruises and sprains

b. Stings and bites

c. Broken bones

d. Bleeding

e. Burns

f. Snake bite

g. Hypothermia and frostbite

h. Heat stress and sunstroke

i. Dehydration, and

j. Shock.

### SVA 4 Food Preparation (Vegetation) AL: B Period(s): 1

a. State the methods of identifying and procuring edible plant foods.

b. Outline how to complete a taste test on unfamiliar plant to determine edibility.

c. Describe the remedy following an adverse reaction to eating a plant.

### SVA 5 Food Preparation (Animal & Marine) AL: B Period(s): 1

a. State the methods for identifying and procuring food.

b. Describe the following food preparation techniques:

    (1) Bleeding
    (2) Skinning
    (3) Gutting
    (4) Butchering.

## SVA 5 Food Preparation (Animal & Marine) (continued…)

c. Describe the following methods of food preparation:

  (1) Strip drying
  (2) Smoking
  (3) Refrigeration
  (4) Salting
  (5) Freezing, and
  (6) Brining.

## SVA 6 Introduction to Survival Environments AL: C Period(s): 2

Outline the characteristics, hazards and precautions associated with:

a. Tropical scrub
b. Cold weather
c. Desert
d. Sea and sea coast, and
e. Natural disasters eg; flood, fire, storm etc.

## SVA 7 Search and Rescue Procedures AL: B Period(s): 2

a. Describe the planning procedure for a field search.

b. Explain the organisation and implementation of a field search.

c. Describe the execution of the search patterns listed in FCS 3.

d. Describe recovery techniques.

## SVA 8 Examination Period(s): 1

## SVA 9 Examination Review Period(s): 1

# SURVIVAL ADVANCED

## SVA 1 - SURVIVAL PLANNING AND PREPARATION

## 1 PERIOD

### Introduction

**1001.** A group or individual can be put into a survival situation at any time. This could range from a man-made disaster like a suburban train derailment, to a natural occurrence such as a flood or bushfire. You will recall that the Survival Proficiency (SVP) notes Lecture 1, states that the AIRTC course is directed to survival in the natural environment. Whilst this is most certainly the case, the psychological and social stresses caused by such an event apply in nearly all situations. We all know that "it will not happen to me". The fact is that it does happen to ordinary people like us, and to believe otherwise will lead to psychological unpreparedness. This often causes mistakes to be made and unwise decisions to be taken which in a group situation usually bring about social tensions you can well do without.

**1002.** Awareness of the problems that occur will allow you to prepare better for when/ if the time comes. Listed below are some of the causes and effects that psychological and social attitudes can have on both individuals and groups in a survival situation.

a. Low morale, can be brought about by any number of reasons, from something as basic as having enough water to freshen yourself up in the morning , to lack of warmth and shelter. Morale is usually affected initially, by some physical deprivation or feeling of unfairness and then compounds into a serious and sometimes very destructive problem. To maintain morale, try initially, to meet the basic needs (warmth, shelter, food, security etc.) of the individuals and the group and then extend this to the higher level needs like having a group purpose and feeling of belonging.

b. Lack of purpose, goals or motivation, nearly always stems from low morale and some ways to begin to motivate are mentioned above. The follow up to this is to have a plan and set goals that are within the capabilities of the group. The operative word is *achievable* and once people have had a few successes, motivation and a sense of purpose will automatically follow.

c. Lack of discipline in both the individual and the group, leads to disorganisation, a lowering of living standards, division within the group and has a detrimental effect on morale. Discipline can be maintained by agreeing on some basic rules which are then regulated by the appointed leader. Some of the points which need to be addressed would be a personal hygiene routine, stowage of personal and community equipment, procedures for protecting the food store and water supply and a roster for tending the fire.

d. Conflict between members of the group, normally means that someone either feels that they are being hard done by in some way, either in a physical sense or by their place in the 'pecking order' of the group. It can be overcome by the maintenance of discipline and by ensuring that the division of work is equal. Remember though, that even in a survival situation, we are dealing with human nature and some people just do not like each other, keep this in mind when allocating work parties, sleeping spaces etc. and don't put enemies together.

e. Fear of the unknown, is a fairly normal mental reaction for a person placed into a survival situation. It generally comes in three forms, when / if will someone come and rescue me, what is in this place that can hurt me and what is here, if anything, that can help me to survive. It is often hard to completely dispel these fears, but they can be alleviated to some extent by taking practical action. In the first instance, work on your signalling devices and organise a lookout system to both increase your chances of being found and also to warn of any impending danger. Next, carry out systematic exploration of the immediate area to locate food and water sources and check for any potential hazards. Finally, make sure that everyone in the group is kept informed of what is happening , try to eliminate the unknown.

f. Lack of success in completing tasks of significant survival value, as has been alluded to above, will have a detrimental effect on morale and lead to an unwillingness for people to take part in such activities. Individuals have different personal skills and these need to be maximised. Those who are good with their hands for instance might be tasked to make items / utensils for the camp, whilst a natural hunter would be set to trapping game. Work out who is best suited and make the tasks attainable for them.

g. A sense of insecurity, hopelessness and despair, is once again a predictable state of mind for a survivor. The more strong willed and optimistic members of the group will be able to counter this feeling in themselves and need to be able transmit their feelings to others. Positive actions, like doing something to physically improve your conditions will also help.

## Enhancing Survival

**1003.** Survival is enhanced by a systematic approach to training which identifies the key elements to be considered. The elements that contribute to a cadet’s survival are discussed in the following paragraphs.

a. Motivation. The individual’s motivations and the groups’ morale are critical aspects for survival. Personal motivation may be driven by a number of factors:

i. a return to family,
ii belief in a cause,
iii a determination to defeat the enemy, or
iv the situation at hand.

The morale of a group, that bond creating cohesion and esprit de corps, results in a united will which may boost the flagging efforts of weaker members in the team.

## Enhancing Survival (cont)

b. Confidence. The most effective way of instilling self confidence is through the acquisition of knowledge and the practical application of skills during training.

Progressive training broadens the cadets' understanding of their capabilities and limitations. Coping with arduous and dangerous situations provides motivation for the cadet and serves to develop their confidence.

c. Adaptability The cadet requires both initiative and flexibility in adapting to their environment. Training can only expose cadets to a limited range of possible situations. Practice in quick decision making coupled with success in achieving small short term goals, increase the adaptability of the cadet.

d. Energy Balance. There is a need to balance the amount of physical energy expended in obtaining immediate physical needs, such as food and water, and the effort required for long term survival. Inactivity or a lack of confidence will result in poor decision making, a decrease in stamina and an early demise. Activity that realises short term goals is well spent and encourages the cadet to continue in this type of productive effort.

e. Resource Use. Resource use refers to physical as well as mental resource. The three basic elements necessary for survival are:

i. water,
ii shelter, and
iii food.

Knowledge and skill gained in training will enable cadets to take advantage of the physical resources available. Assigning priority of activity to more immediate needs is an important part of resource use. Mental resilience provides the ability to relax and gain inner strength and can be developed through practice. Such resilience temporarily alleviates stress and provides encouragement to the cadet to continue in their efforts.

## Leadership and Group Behaviour

### 1004. General

a. Normally, a group stands a better chance of survival than an individual in a hostile environment. However, for the group to be effective in combat survival it is essential that individuals have confidence in themselves, their leader and the group.

b. All members must recognise the formal leader and abide by their decisions. The leader must be capable of satisfying the needs of the individuals and develop a high level of group morale The effectiveness of the group to cope in a survival situation is dependant on its ability to cope with problems and situations beyond the capacity of individuals.

## Leadership and Group Behaviour (cont)

c. The cultural and social bonds that exist within the group in normal circumstances often become severely strained in a survival situation. Accepted standards of behaviour may degenerate to thew point where stealing, lying and violence may plague the group. The leader is required to exercise firm discipline if the group is to maintain an appropriate standard of behaviour.

**1005.** Group Survival Factors There is several factors affecting group survival which the leader must be aware and take into account if they are to maintain effective control of the group. These factors are as follows:

i Use of individual Skills. The leader should capitalise upon those individuals having particular skills pertinent to survival.

ii. Accept Suggestion. Individuals within the group should be able to contribute ideas and express criticism.

iii. Organisation. An essential element in group survival is the effective employment of the group. Because physical activity reduces both stress and the likelihood of panic, all members must be kept occupied. The following principles should be applied by the group leader in planning of group task:

a. members should work in pairs on similar or related tasks,
b. pairs should be tasked daily,
c. tasks assigned should be rotated to avoid the possibility of disputes arising from alleged inequalities in the workload.
d. tasks should be scheduled for morning and evening hours, leaving the remainder of time for rest and group involvement in survival planning.

iv Leadership. There will be times when the leader must make decisions without group input. Subordinates will tend to follow someone doing something in times of stress, since action is itself stress reducing.

v. Discipline. The self discipline of individuals in the group is an important factor in maintaining group cohesion. However, imposed discipline may be necessary to prevent individuals quitting a task because they do not realise they have sufficient reserves to achieve the goal.

vi Reaction to Casualties. The sight of the dead and wounded affects individuals differently. A casualty within the group is stressful since it threatens the notion of protection and invulnerability. The leader must work at keeping their subordinates occupied and redirect their focus to goals that can be quickly achieved to restore their morale.

## Planning Equipment Requirements

**1006.** It should never happen, but every now and again people become lost or have trouble in remote areas. On many occasions the person or persons concerned are not in nearly as much trouble as they think. When you panic, you pay the price. Survival depends on commonsense, patience, organisation ability and tenacity. Physical fitness helps, as does knowledge of basic survival skills. Being prepared before anything goes wrong provides a strong plan if the worse happens.

**1007.** During the planning phase of an expedition or trip, decisions will have been made as to the type and quantities of equipment that will be required for normal operations. In order to cope with a survival situation however, some further factors need to be addressed and included in the plan;

a. What is the duration of the trip and by how much would it be extended if something goes wrong considering the worst scenario?
b. What is the make up and quantity of any extra rations that need to be taken?
c. Is water readily available in the area?
d. Is any specialised equipment required for the terrain and / or conditions?
e. Do any special medicines/ drugs need to be included in the medical kit?

## Knowledge of the Terrain

**1008.** A thorough knowledge about the location in which the activity is to be conducted is essential. The way to obtain this is by talking to people who have been there before, read any books or notes about it and make sure that you have up to date and reliable maps of the area. Study all of these sources of information and try to predict any likely problem spots and plan to either avoid them or take extra precautions.

## Methods of Travel

**1009.** All modes of travel need to be addressed during the planning phase, particularly when calculating the type and amount of equipment, food and water you are required to take. If you plan to walk and find that you cannot carry everything, it may be necessary to establish resupply dumps before hand. Emergency procedures for travel must also be considered. For example, what will you do if the vehicle breaks down, the canoe gets a hole in it or the horse goes lame. This will mean that you are back on foot but without the means to carry all of your gear.

## Weather Conditions

**1010.** Weather patterns vary from season to season and also from year to year. Learn to follow the development of these weather patterns, particularly when planning an expedition. One of the best methods is to collect weather map information, either from the local news paper or television station and thus build up your own forecast system. More up to date information (maximum of six hours old) is available from the Bureau of Meteorology via specifically dedicated numbers in the telephone book, or from hourly radio weather reports.

## Notification

**1011.** It is absolutely essential that someone back in civilisation knows where your group is expected to be at any particular time. The two main reasons for this are so that your progress can be monitored. It also cuts down the reaction time in an emergency situation, in case a search and/ or rescue needs to be organised. One of the most effective methods is to report your progress with local authorities such as police or national parks rangers, stating an estimated time of arrival at your next objective (don't forget to check in and tell them when you get there). Another method is to have an anchor person who has a copy of your maps and movement plan and then you check in by a system of radio or telephone schedules at pre set times each day.

## Equipment Requirements

**1012.** Equipment requirements will be guided by the type of bivouac planned and should include, but not limited to:

a. tentage,
b. food,
c. radio,
d. maps,
e. backpacks,
f. clothing,
g. mobile telephone, and
h. safety equipment.

# SURVIVAL ADVANCED

## SVA 2 - TRAPS AND SNARES

## 1 PERIOD

### Introduction

**2001.** Survival can be a long term affair, but whether it is long or short, you will require food to keep up your strength. The best type of food is meat and traps and snares are the best means of obtaining it. If you have the ability to catch birds, animals, reptiles or fish you can live off the land indefinitely. Anything that creeps, crawls, swims or flies is a potential source of food.

**2002.** Successful hunting and trapping of animals and birds is best achieved when you are established in some sort of base camp so that a study can be made of the local conditions and habits of the wildlife in the area. Most land animals leave tracks in soft earth which are a give away to their whereabouts, these are described in more detail at Annex A. Other considerations when looking for good sites for setting traps and snares are as follows;

a. Many animals such as rabbits, possums, pigs, goats and sheep tend to follow regularly defined trails (you can tell the type of animal by their tracks) which usually provide very good opportunities for trapping.

b. Some small mammals, particularly rabbits and hares, also use the same locations as regular toilet stops. These are called 'dung hills' and are an excellent trapping sites, but care must be taken to replace any disturbed earth and droppings as naturally as possible, so as not to warn the animal.

c. The eating habits of wild animals and birds are worth studying and although they vary from place to place, generally tend to follow a regular pattern that will make trapping and hunting a bit easier. They normally feed at regular times of the day and watering points, grazing areas, clearings, trail openings in bushland and burrows are all worthy of attention.

**2003.** In an emergency situation, remember that your own survival is the only priority and on such occasions, when hunting or trapping animals, you must train yourself to think and act like a predator. Use your skills of camouflage and concealment (as animals do), move carefully, use the wind to your advantage and most importantly, disguise your human scent in some way.

### Construction Materials.

**2004.** Traps and snares can be made entirely from natural materials but it is probably more expedient to carry a few small items in your personal survival kit which will make trapping more effective. For example, a wire noose will be easier to keep open than one made from cord or bark string and manufactured fish hooks and lines are less difficult to handle than those made from natural materials. Also, when selecting the timber for your snares it must be green and springy, because dead or dried out wood will often snap easily and won't provide the flexibility normally required in trap construction.

## Rules for Traps and Snares

**2005.** There are four very simple rules to follow to improve your success rate when trapping game:

a. Human/foreign scents; Remember that wild animals have a very keen sense of smell which they rely on largely for their own survival. Do not leave your scent on any part of the trap and handle it as it as little possible, also wear gloves if you have them. Each tree and bush gives off it's own smell so make sure that your snares are made from nearby timber and not something foreign to the area. Campfire smoke and/or animal dung of the type you want to trap will usually disguise human scent.

b. Disturbing the environment; Try to do as much of your preparation as possible away from the site where you intend to set the trap. Do not tread on the animal trail or dung hill and completely cover any sign that you have been there.

c. Camouflage; Make all of your traps and snares blend in with their surroundings and cover any freshly cut ends of saplings and so on with either mud or animal droppings.

d. Strength; Remember that a trapped animal will be fighting for its life and no matter how small, will use all of its energy to try to escape. Make sure that your traps are stronger than the animal you intend to catch, because once they have escaped, you do not get a second chance.

## Types of Traps and Snares

**2006.** Most traps and snares will kill an animal quickly and as humanely as possible, therefore the terminology to describe these devices can be somewhat misleading. Some devices however do seem rather savage but remember that your own survival is paramount. Traps and snares generally fall into four categories:

i. strangle - loop snares and nooses,
ii. mangle - deadfall,
iii. tangle - net, and
iv. hold - pit or cage.

**2007.** Often, traps will employ two or more of these techniques. A few devices are described and illustrated below but much of the success of trapping, and indeed hunting in general, is trial and error according to the situation and animal behaviour at the time, so you must be prepared to experiment and modify accordingly.

## Baiting the Trap.

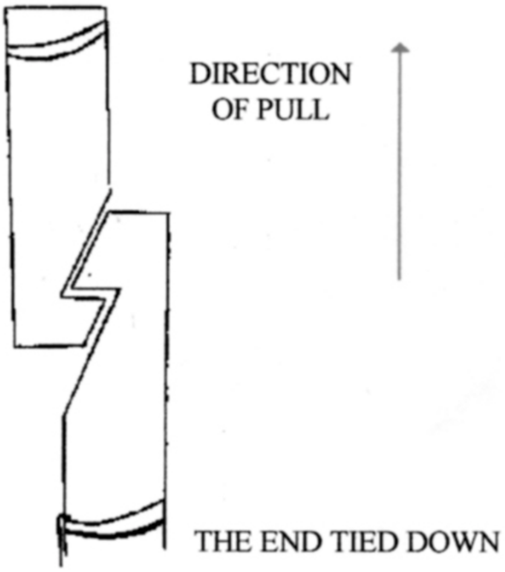
**2008.** A means of determining which are most likely to attract game to your trap is to test bait an area. Select some varied types of baits, and set them on low stakes. at least three feet apart. Leave the baits overnight, an in the morning check the bait to see which have been taken. An investigation of the stomach contents of your catch, will provide information on its eating habits.

**2009.** Suggested baits are:

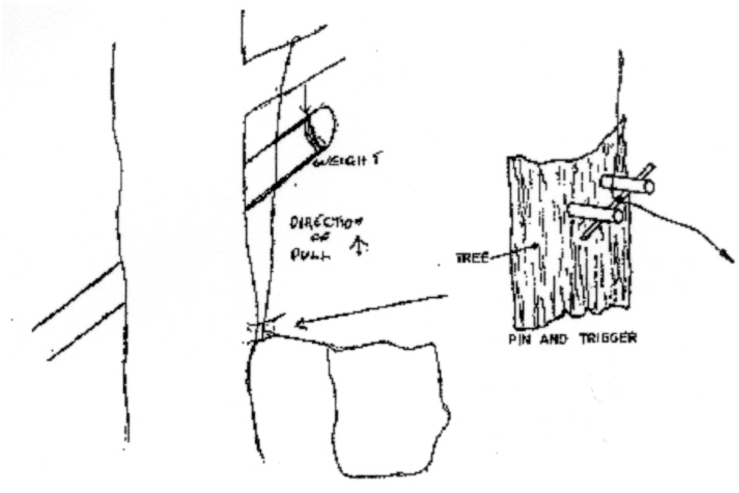
- i roots or insects for earth digging animals,
- ii flesh for carnivorous animals,
- iii insects, seeds or fruit for birds or tree feeding animals,
- iv herbage for grazing animals,
- v worms, grubs or insects for fish, or
- vi do not be afraid to use small portions of your emergency rations as bait (particularly chocolate as its very strangeness may attract game).

**Simple Latch/Pin and Trigger.**

**2010.** The simple latch release mechanism is most commonly used with a twitch up snare. The mechanism consists of two sticks, notched at the end. One anchored to the ground and the other fixed to the noose. The notched ends fit together to form a latch as illustrated.



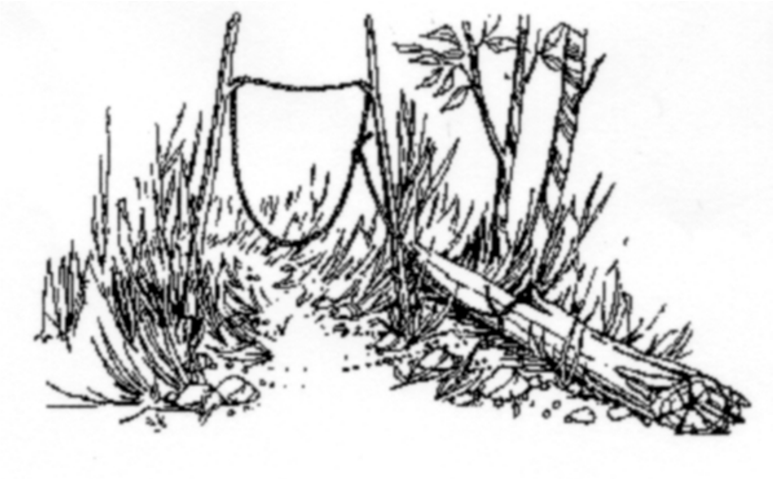
**2011.** The pin and trigger mechanism consists of three small hardwood sticks. Two pins are driven into the truck of a log or tree, horizontal to the ground. The trigger stick is tied to the mangle or snare type trap and fits under the two pins. The trigger is held against the two pins until it is released by the animal running against a trip wire or catching itself in the snare.



## Latch/ Pin and Trigger

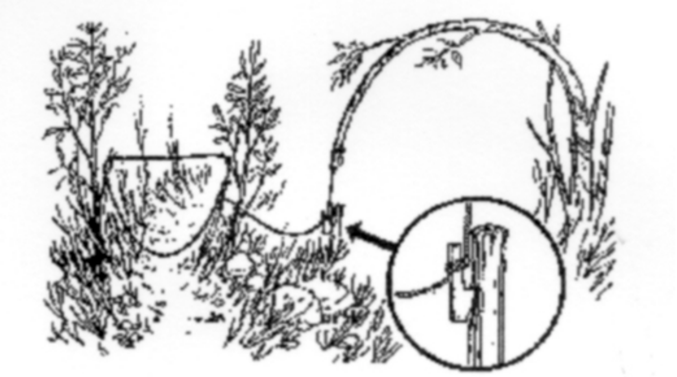
**2012.** As the name implies, these snares employ some sort of triggering device which is activated by the animal. They usually consist of a noose, spring and a trip wire or stick and may be either baited or unbaited. Examples are illustrated and described below:

a. Simple Snare. A loop dragged over a game trail and tied to a strong shrub. A variation is to tie it to a drag pole. The former strangles the game as it tries to get free, and the latter does the same as the drag pole catches in the undergrowth.

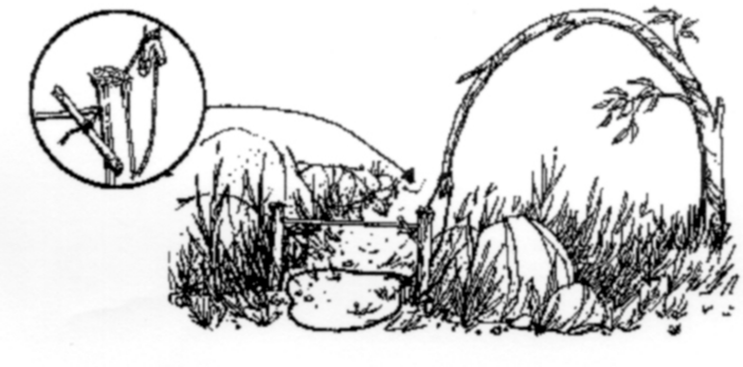


b. Twitch-up Snares. This type of snare is set in a similar fashion to the simple snare and uses the natural springiness of a sapling to lift the catch off the ground away from predators. The sapling is looped and bent and fixed to the release mechanism ( a simple latch is quite effective).

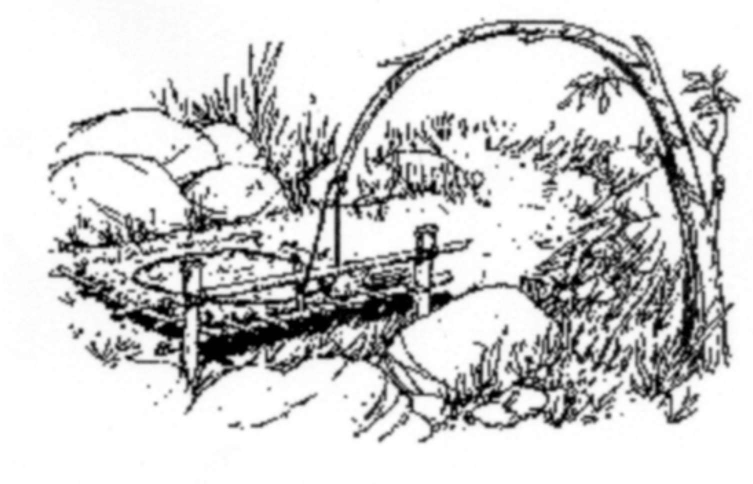
   i. With Simple Latch Release Mechanism:



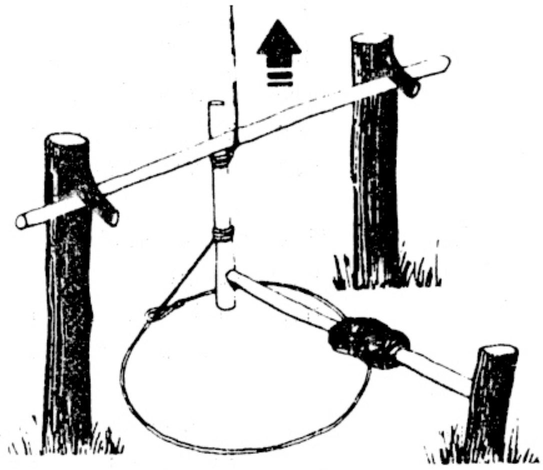
   ii. With Pin & Trigger Mechanism:



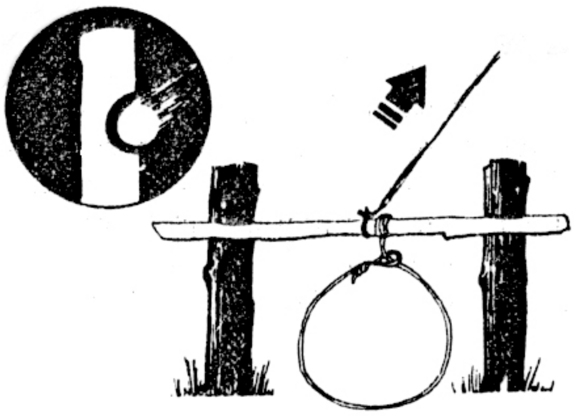
iii Hanging Snare:



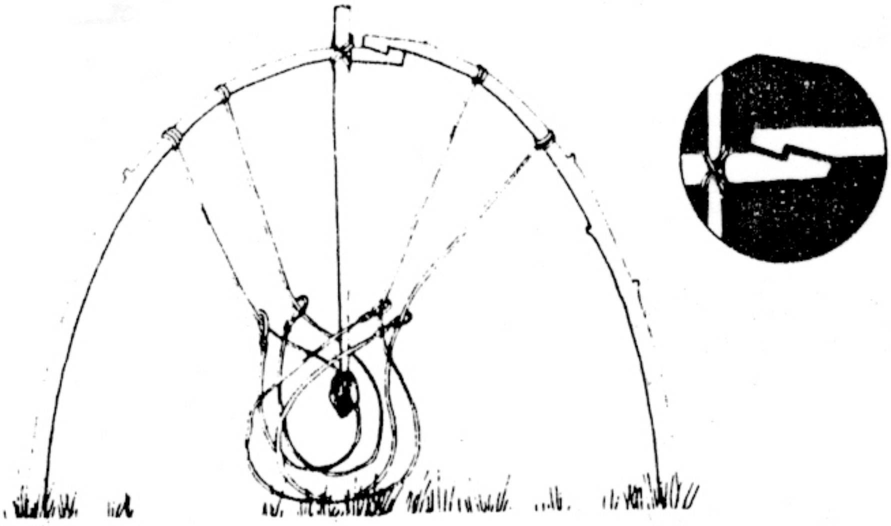
iv. Baited toggle release snare; a baited stick is wedged against the bottom part of a toggle, the top of which is attached by a line to a springy sapling (under tension) and hooked under a retaining bar. When the bait stick is moved, the toggle releases and flies up taking the snare with it.



v. Unbaited spring snare; this snare is activated by the animal's struggles and consists of two uprights with rounded notches holding a noose stick (several nooses can be fitted to cover a wider area). The tensioned line should be at an angle away from the noose stick so as to keep it in place.

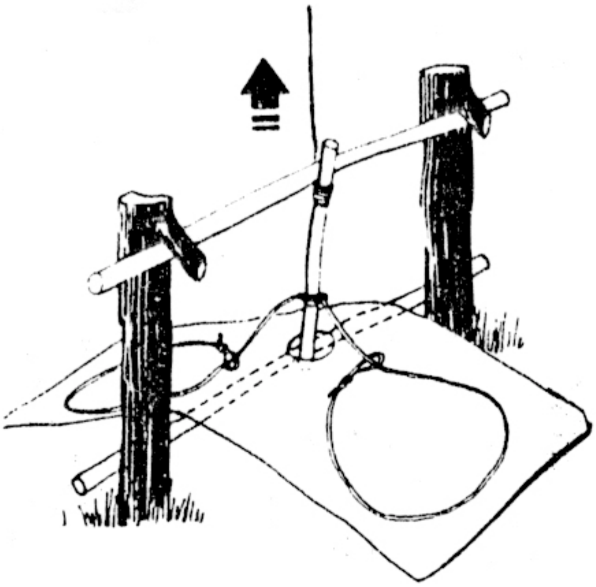


vi. Baited double spring snare; this snare requires the use of stiff wire nooses and is normally sited along a game trail to trap small carnivores or pigs. Two saplings are notched so as to fit together when bent toward each other and a bait bar is lashed to one of them. When the bait is taken the saplings spring apart and the animal is suspended between them.



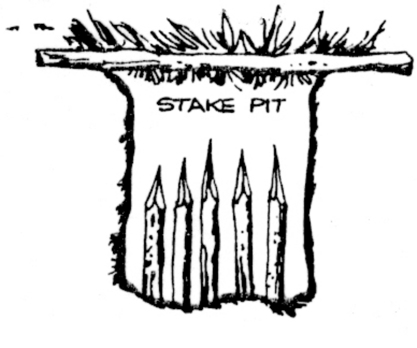
## Platform Trap

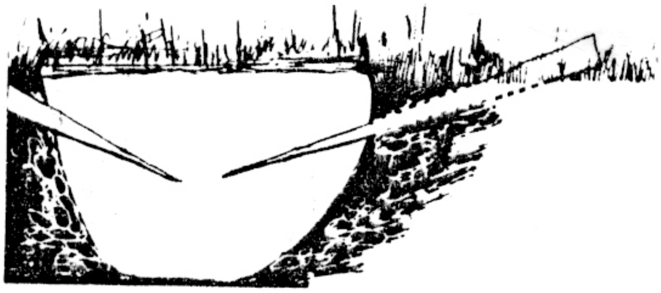
**2013.** This trap consists of a platform made from sticks or bark and a triggering device similar to those described above and illustrated below. It is best placed in a depression in the ground on either a game trail or feeding area and is designed to catch the animal by the leg.



## Pit Trap

**20014.** A pit trap is simply a hole in the ground, usually dug across a game trail and covered with natural material, which the animal falls into and cannot get out. The size and depth of the pit will depend on the type of animal you intend to catch. The bottom of the pit may be staked so that the animal is impaled and killed or another use for stakes is to place them around the sides to prevent escape.

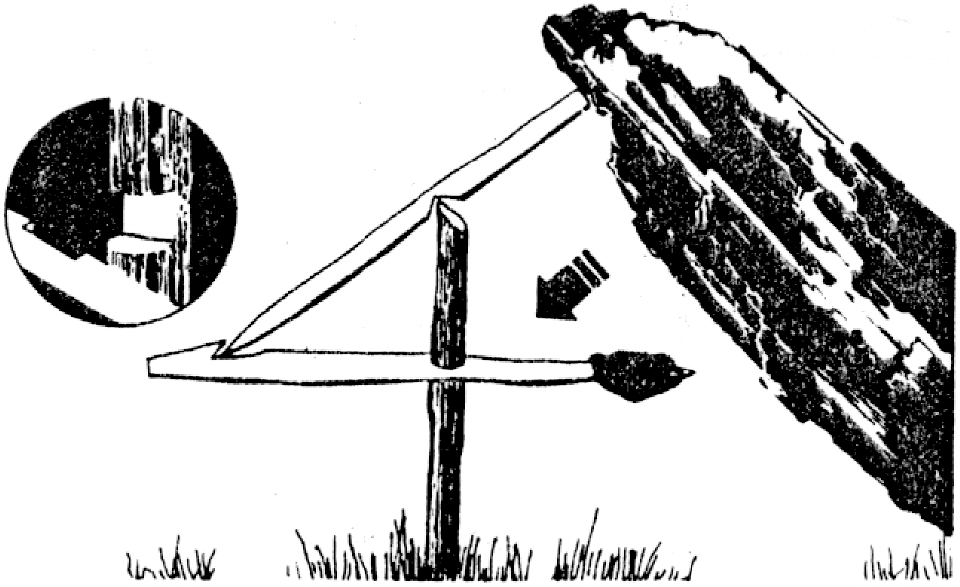




**Warning;** all pit traps should be marked in some way as they work just as well on humans as on animals**.**

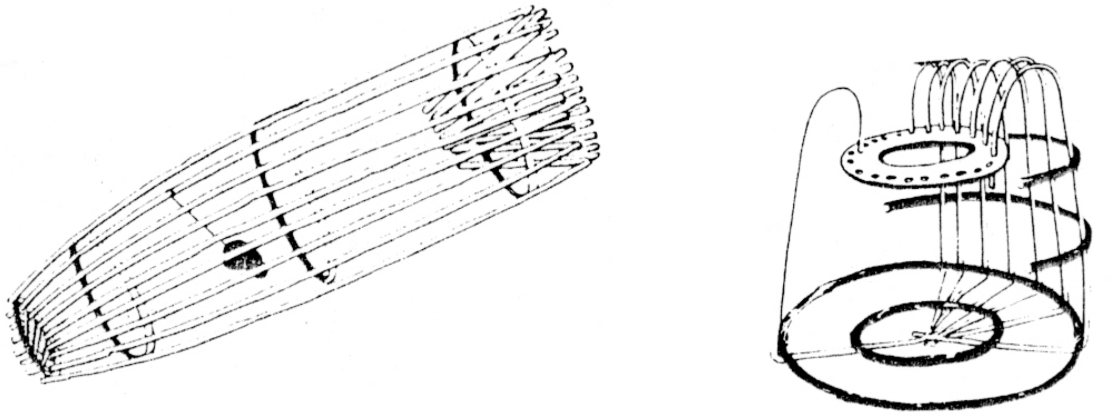
## Figure 4 Deadfall

**2015.** As the name implies, this trap has a triggering device which resembles the number four. As shown in Figure 6 it consists of a bait stick that is notched at right angles into an upright, with a locking bar at a 45 degree angle supporting the deadfall. A cage may be substituted for the deadfall using the same triggering device, but it must be heavy enough to stop the animal from escaping.

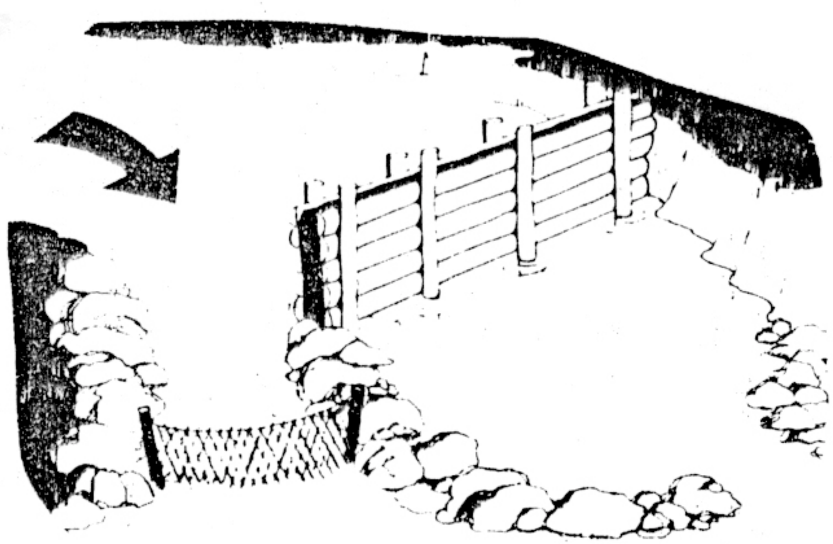


## Fish Trap

**2016.** Two different types of fish trap are shown in Survival Proficiency (SVP) Cadet notes Chapter Three and there are to many others to mention them all here. The two methods shown here are the 'drum or basket' trap that is similar to the log trap in SVP and useful in either fresh or salt water. The other technique at is 'damming and netting' for use in small flowing rivers and creeks.



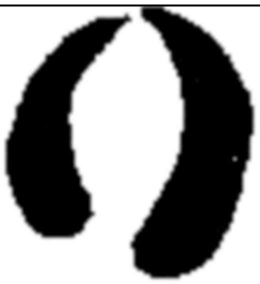
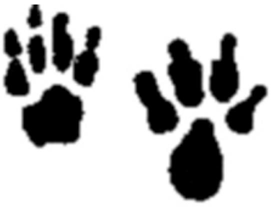
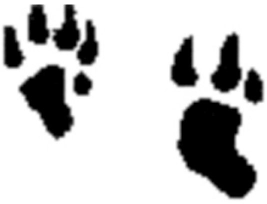
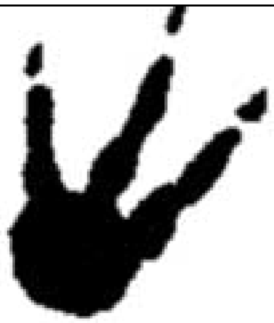
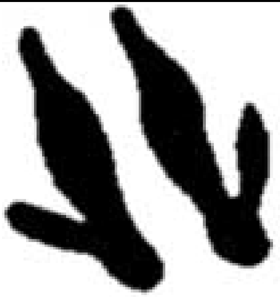
Drum or Basket trap



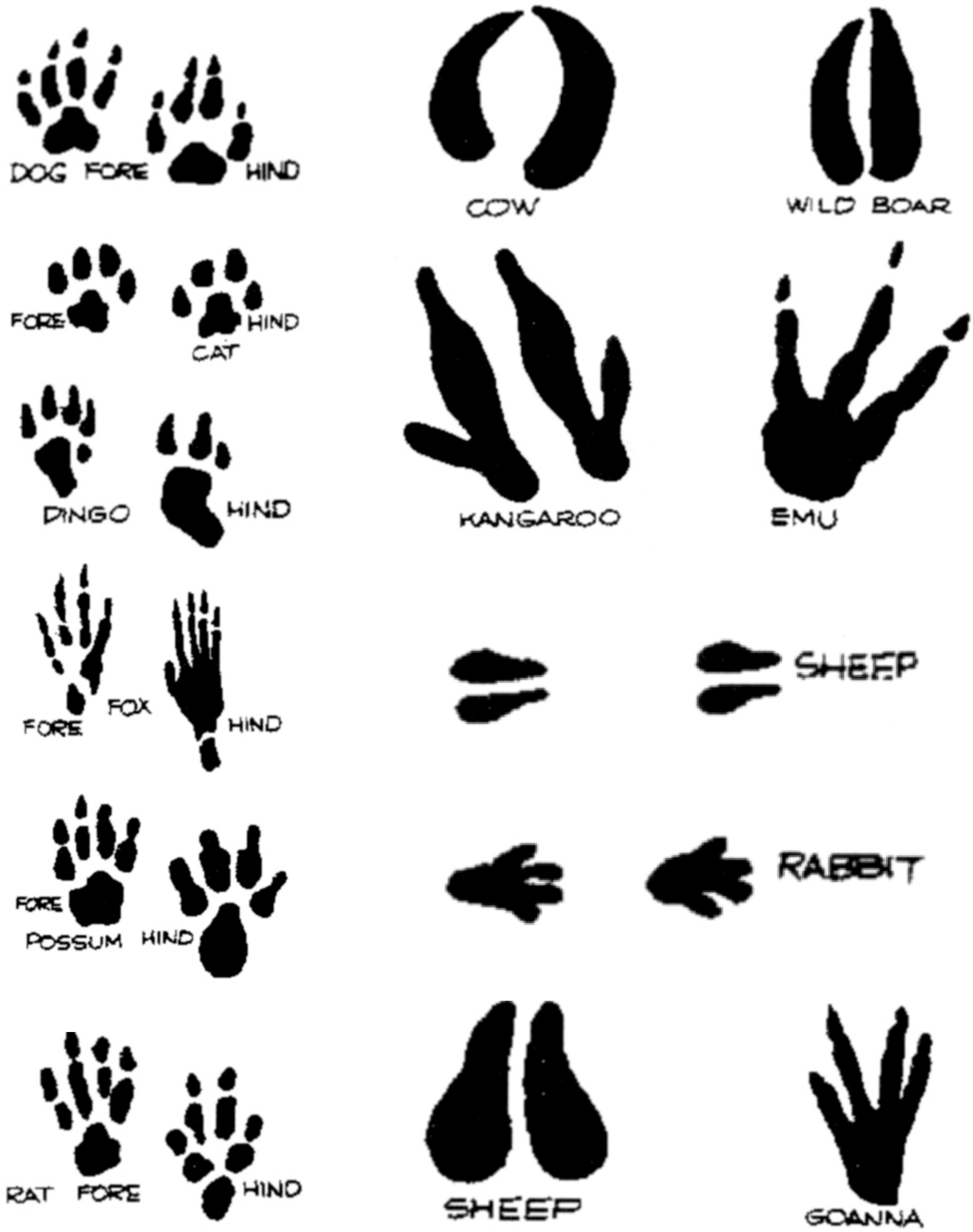
Damming & netting

**ANNEX A TO**
**SVA 2**

## COMMON ANIMAL TRACKS

| FOOT PRINT TYPE | ANIMAL TYPE | BAIT TYPE | POSSIBLE ANIMAL FORM |
|---|---|---|---|
|  | Earth digging | Yams, taro, tubers, sweet potatoes | Pig, Bandicoot |
|  | Tree climbing | Wild fruits, ripe berries, nuts, young soft tips of branches and tree ferns | Possum, Cuscus, Rat |
|  | Flesh eating | Any animal or fish entrails, worms | Dingo, Wild Dog, Crows, Wild Pigs |
|  | Grain eating | Seed barley grass, wild oats, plantain, paspalum, johnson's and rye grass, cocksfoot | Cockatoo, Pigeons, Finches, Parrot. |
|  | Grazing | Any of the above grass, particularly choice young pieces | Kangaroo, Wallaby, Wild Deer, Goat and Cattle. |

# COMMON ANIMAL TRACKS



# SURVIVAL ADVANCED

## SVA 3 - SURVIVAL FIRST AID

### 2 PERIODS

### Introduction

**3001.** In a survival situation extra care must be taken to avoid illness and injury, especially as full medical attention is not readily available. 'Murphy's Law' however, states that this is not going to be the case so people who find themselves in such a predicament will need to be flexible and learn to improvise when it is necessary to apply survival first aid. Although most of the methods described in this paper are the standard accepted treatments, some of them will show a bit of improvisation to give an idea of how to go about it.

### Minor Injuries (cuts, bruising and sprains)

**3002.** Although referred to as minor, these types of injuries must not be taken lightly. Because the skin has been broken, cuts and lacerations can very easily become infected and cause secondary problems which are much more difficult to treat. All open wounds must be thoroughly cleaned (boiled and salted water is a good start) and then disinfected (applied around the wound) and covered. A deep cut may also require stitches (medical term is sutures) and a method of this is shown below. An Aboriginal method of suturing is to make a bull ant or green tree ant bite across the cut and then break the body off, leaving the jaws behind to close the wound.

#### Stiches(Suturing a wound)

With a sterilised needle & thread or gut make each stitch individually, beginning across the mid point of the wound.

Draw the edges together & tie off thread, then proceed working outwards.

**3003.** Bruises to the body are caused by either a blow or fall against a hard object which causes bleeding into the deep tissue and known as a closed tissue wound. Bad bruising can be very painful and debilitating and the treatment is to apply a cold compress (ice if you have it for 15 to 20 minutes) directly onto the injury as quickly as possible, to control the bleeding. The patient should rest and if the bruise is on a limb, elevate the injured part.

**3004.** Sprains are usually to the wrist, fingers or ankle when the joint is forced into an abnormal position. Treat a sprain initially as you would for bruising and then apply a firm bandage to the joint. The injury must then be rested and given time to heal properly. The treatment for a sprain is as follows:

a. Place the casualty in the most comfortable position.
b. Raise the injured part to reduce the swelling.
c. Support the joint with a firm bandage.

## Minor Injuries (cuts, bruising and sprains) (cont)

d. Apply a cold compress or ice pack over the bandage for 20 minutes.
e. Avoid using for 24-28 hours.
f. If you are unsure of the diagnosis, treat the injury as a fracture.

**3005.** Blisters. Leave blisters alone. Prevention is best - break in boots before camp. If inside the shoe, try to prevent further rubbing by placing a sticking plaster over the affected area. Change socks daily and beware of hot spots.

## Bleeding

**3006.** The effects of serious blood loss are almost instantaneous and will cause the patient to go into shock very quickly. For example, for young adults the loss of 0.5 litre will cause dizziness, 1 litre faintness, 1.5 litres collapse and any more than 2.2 litres may result in death. The four main types of bleeding and the treatments are listed below:

a. Arterial Bleeding; this will be easily recognised because the blood pumps out in powerful spurts in time with the victim's pulse rate. Arterial bleeding is the most serious type and must be treated promptly. To control the bleeding, apply pressure to the pressure points of that artery, or use a constrictive bandage. A diagram of pressure points is at Annex A.

b. Venous Bleeding; blood from the veins is darker and will flow more slowly, hence you have a bit more time to treat the wound. Apply pressure directly over the injury using a padded bandage or shell dressing. When the bleeding is under control, bind the bandage firmly in place. Later, when the bleeding has stopped, the wound will need to be cleaned, sterilised and dressed.

c. Capillary Bleeding; is where the blood only appears in drops from the small blood vessels near the surface of the skin. Capillary bleeding will usually clot fairly quickly and stop. This type of injury should be dressed and treated as for a minor cut.

d. Internal Bleeding; occurs as the result of a deep wound, a violent blow to the body and from fractures to the bones. Symptoms may be a bruising of the skin, blood in the urine or faeces, vomiting or coughing up blood. The only treatment for internal injuries is constant nursing attention and evacuation as soon as possible. Laying the patient down with the legs slightly raised, if possible, and loosen any tight clothing. Do not give anything by mouth.

**3007.** Treatment for External Bleeding: Refer to Annex A for diagrams of the control of external bleeding. Pick off any foreign bodies or wipe them off with a dressing. Wash the wound and the area around it, if possible. Press the sides of the wound firmly together, place a sterile pad or adhesive dressing on the wound and apply pressure by hand or by bandaging firmly. A clean, folded handkerchief sterilised with boiling water or alcohol will do in an emergency. If the would be large, you may have to apply pressure for up to 15 minutes.

**3008.** If the bleeding continues through the first dressing, apply another over the first dressing, or relocate the dressing.

**3009.** Do not give the patient any stimulant until the bleeding has stopped. Keep them quiet, comfortable and reassured.

## Stings and Bites

**3010.** Except for the Funnel Web and Red Back spiders, the stings or bites from most Australian insects, although painful , are not life - threatening unless the casualty is allergic to the particular venom. The most common bites and stings which require first aid treatment are;

a. Bee.
b. European Wasp.
c. Tick.
e. Funnel Web Spider.
f. Red Back Spider.

## Symptoms and Treatment

### Bee

**3011.** Bee stings have a barbed end and usually are left behind in the flesh of the victim, with the venom sac still attached to the sting. A sting from a bee is immediately painful and causes the area around the sting to become red and puffy very quickly.

**3012.** To avoid injecting more venom into the victim, remove the sting by scraping it sideways with a knife blade and not by pinching it out. After the sting has been removed treat as follows:

a. Wipe the area clean.

b. Apply cold compresses and/ or a pain relief agent such as 'Stingoes' or similar.

**3013.** In cases where the victim has a history of or shows signs of allergy, such as a rash, lumps on the skin, swelling of the throat or wheezing, treat as follows;

a. Check the victim's responses, airway, breathing and circulation.

b. Apply a pressure bandage and immobilisation as for snake bite.

c. Try to evacuate to medical aid (may not be possible in a survival situation).

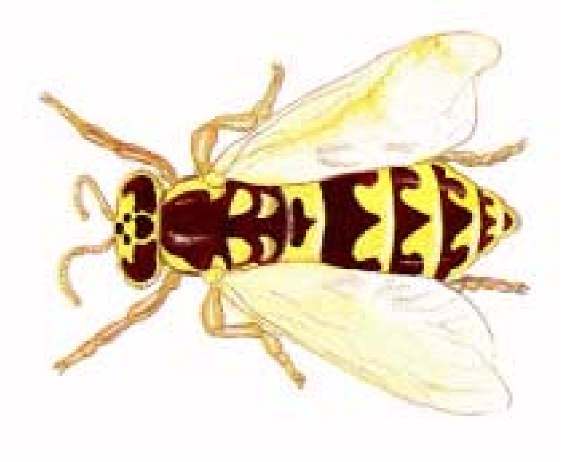
d. Periodically observe and record the pulse and breathing.

e. If the casualty is carrying medication for the allergy it should be administered immediately. Such medication must be positively identified by either the label, the casualty or a relative, otherwise it should not be given.

f. Carry out Expired Air Resuscitation (EAR) / Cardio - pulmonary Resuscitation (CPR) if breathing or circulation stops.

## European Wasp

**3014.** This insect has only become a serious threat in some parts of Australia in recent years. The wasp does not leave the sting behind and may therefore strike several times causing severe pain. It is attracted to meat cooking, rotting meat and sweet drinks and can sometimes become trapped in soft drink cans. This may result in stinging inside the mouth and throat, a serious situation that can cause swelling and complete blockage of the airway. Treatment for wasp sting is as for paragraphs 3011 and 3013 above.



European Wasp

## Tick

**3015.** Ticks are prevalent in most parts of Australia but the species that causes paralysis in humans occurs mainly along eastern coastal regions. Ticks usually attach themselves in folds of the skin or body crevices of the victim. In most cases with humans, a tick bite will only cause discomfort or local irritation of the skin. It can however, cause paralysis, especially in small children.

**3016.** Symptoms of a serious tick bite are;

a. Weakness of the upper face and eyelids.
b. Weakness in the upper limbs.
c. Weakness of the muscles which aid breathing.

**3017.** Bites from ticks should be managed as follows;

a. If attached inside the ear cavity seek medical aid after killing the tick.

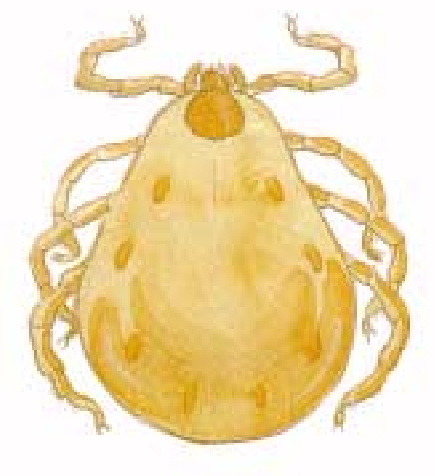
b. To kill the tick, apply a drop of turpentine, kerosene or methylated spirits directly onto the body of the tick.

c. To remove the tick do not squeeze its body but slide a pair of tweezers or the blades of small scissors either side of the head and draw out the tick. Be especially careful not to leave the mouth parts in the victim's skin.

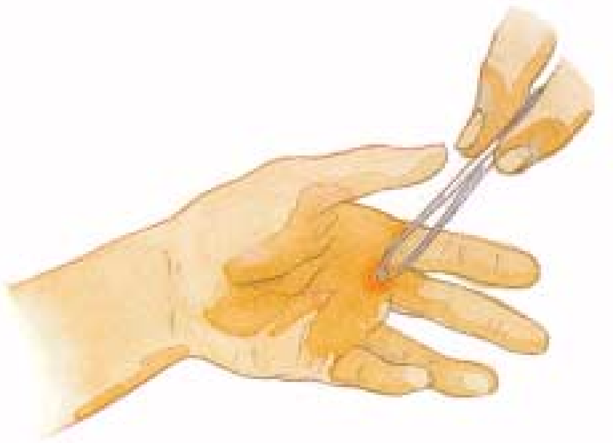
d. Search the victim carefully for more ticks paying particular attention to the hair, ears, under the arms and other body crevices.

e. If the victim is a young child or the toxic effects persist, seek medical aid.

f. Do not apply pressure immobilisation.



Tick



Removing the Rick

## Scorpion

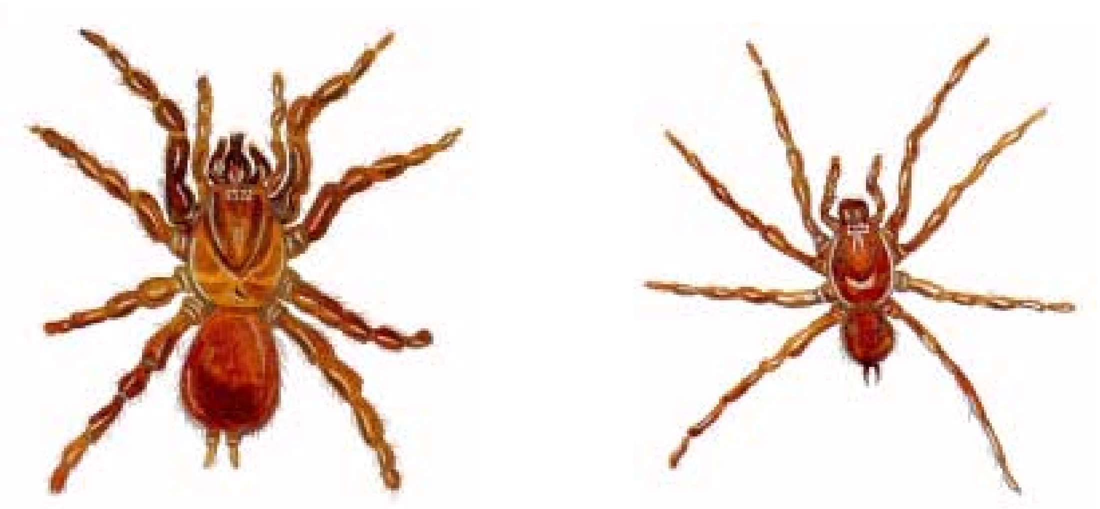
**3018.** Australian species of scorpions will deliver a sting that, whilst causing severe pain is not normally life threatening. The symptoms of a scorpion sting are an immediate sense of burning pain, throbbing and later, numbness. Treatment is;

a. Apply a cold pack or compress over the affected area.

b. Seek medical aid.

## Funnel Web Spider

**3019.** This spider mainly occurs around Sydney and the coastal areas of New South Wales. It inhabits rock crevices, burrows, under houses and one species is found in bushes and trees. The symptoms of a bite from this spider are intense pain initially in the area of the bite, nausea and abdominal pain, breathing difficulty, numbness and muscular weakness. Other signs include excessive saliva from the mouth, noisy breathing and coughing up of secretions, weeping from the eyes, cold skin and shivering. Funnel web spider bite should be managed as for a snake bite and an anti venom is available.



Male and Female Funnel Web

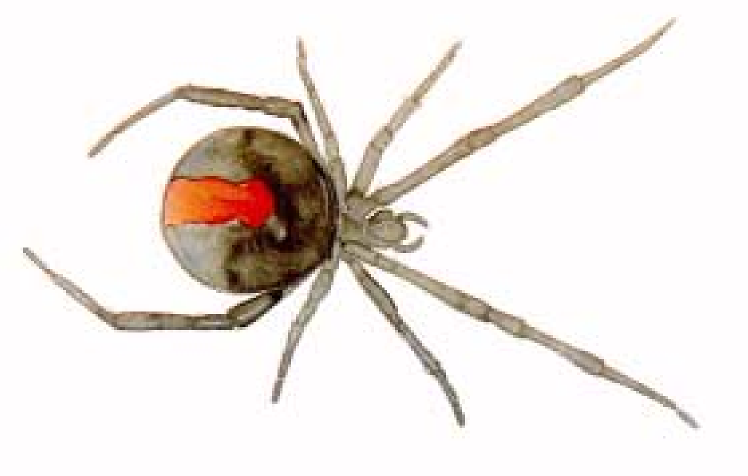
## Red Back Spider

**3020.** The Red back spider is usually found in dark, undisturbed places such as old logs, under the eaves of buildings and discarded tyres or iron and the like. Venom from a this spider is slow working and the symptoms are pain in the area of the bite that then becomes general, nausea, dizziness, faintness and muscle weakness or spasm. A sharp sting may be felt when the spider strikes, but this is not always the case. Other signs include profuse sweating, swelling and sweating around the bite area and a rapid pulse. Red back spider bite should be treated as follows;

a. Reassure the casualty.

b. Apply a cold pack or compress over the area of the bite.

c. Seek medical aid, an anti venom is available.



Red Back Spider

## Fractures

**3021.** The types, causes, symptoms and treatment concerning fractures are many and varied and are much to complex to be fully covered by these notes. The most common fractures occur to the limbs and the following generalisation concentrates on that type of injury. Some methods for treatment and immobilisation of fractures are at Annex B.

## Types of Fractures

**3022.** The three common types are;

a. Closed fracture: the bone is broken through but has not penetrated the skin.

b. Open fracture: where the broken bone has protruded through the skin.

c. Complicated fracture: both open and closed fractures may be complicated when there is associated injury to a major nerve, blood vessels or vital organ (e.g. when a broken rib puntures a lung).

***NOTE: No attempt should be made to force a fracture back into place.***

## Symptoms

**3023.** General symptoms and signs of a fractured limb are;

a. Pain swelling and deformity in the area of the injury.
b. Loss of function
c. If it is a open fracture, bleeding.
d. Possible shock, depending on the cause and severity of the injury.

## Treatment

**3024.** In all cases, fracture victims should be evacuated to a medical facility as soon as possible after first aid treatment has been administered, but in a survival situation, nursing care is probably the best you can give. General treatment is as follows;

a. Make the casualty as comfortable as possible.

b. Check the pulse and circulation of the injured limb.

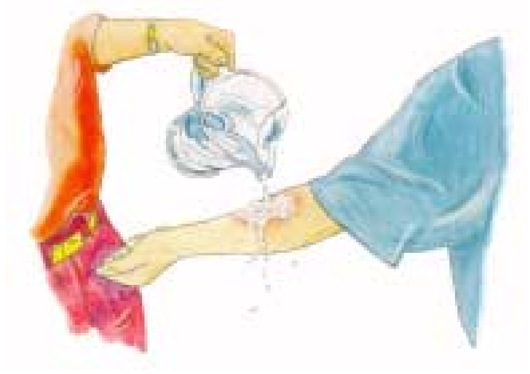
c. Stop bleeding if there is a wound or open fracture.

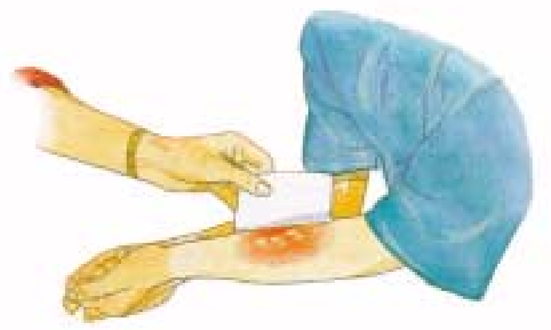
d. Splint and immobilise the injury.

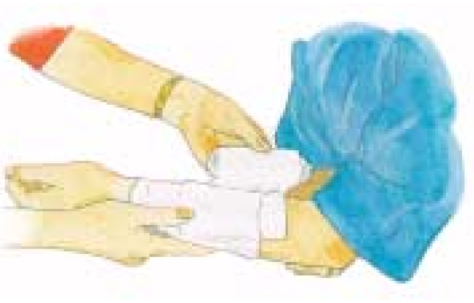
e. Treat for shock if necessary.

## Burns

**3025.** The three stages of burn injuries will have a varying effect on the victim. Deep burns usually occur as a result of contact with flame (bushfire, campfire, etc.) and causes charring and destruction of tissue and bone. Often, because nerve endings are seared, there is little initial pain. Superficial burns are where flesh in not destroyed but will redden and possibly blister. This type of injury is usually very painful and depending of the area affected and / or extent, may cause the victim to go into shock. Scalds are burns caused at the result of hot liquid (water, oil, cooking fat etc.) and have similar symptoms as superficial burns.







**3026.** Treatment for burns, which is standard for most cases, is as follows;

a. Remove the victim from any further danger of increasing the injuries.

b. Quickly extinguish any burning matter on the victim and remove any hot or smouldering clothing, IF NOT STUCK TO THE SKIN, cut it away if necessary.

c. If the injury is to the face or neck, ensure that the airway is clear.

d. Cool the burn area by holding it under cold running water until the affected part has returned to normal body temperature, usually 10 - 20 minutes, or when the patient doesn't suffer increased pain when the injury is removed from the water.

e. When the burn has completely cooled it should be left open. If there is risk of infection however, apply a dry, non stick, sterile dressing. Should the injury be to feet or hands, place dry padding between fingers and toes to prevent them from sticking together.

f. Give the patient frequent small amounts of water to drink as fluids will need to be replaced.

## Snake Bite

**3027.** All bites from venomous snakes must be taken seriously and the victim treated as described here. Prevention is the best defence against snake bite and if you are known to be in snake country, dress accordingly and protect your legs and feet in particular if you are moving about through scrub or long grass. Remember that snakes are masters of camouflage and unless they are moving, are often very hard to detect. Descriptions of some of the more common venomous Australian snakes are at Annex C.

**3028.** Humans are most likely to suffer snake bite either on the hands and arms when working near the ground, or on the legs. The treatment for this is shown at Figure 3 and described in stages below:

a. Place the victim in a resting position with the injury below the level of the heart and check airway, breathing and circulation.

b. Apply a pressure immobilisation bandage from above the bitten area, down to the end of the limb and then back up to the groin or armpit. The bandage should be tight enough to depress the skin but not stop the flow of blood like a tourniquet. The purpose is to restrict the spread of toxins through the lymphatic system.

c. Immobilise the limb by splinting (outside the pressure immobilisation bandage) and again bandaging the entire length.

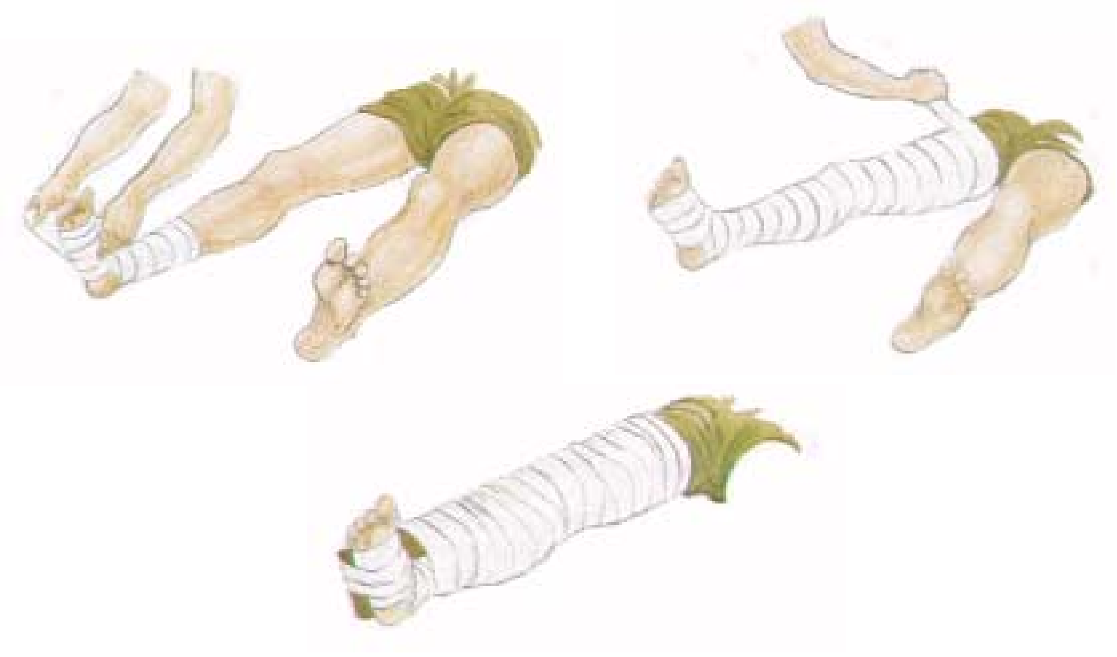
d. Continually monitor the patient's breathing and pulse rate and apply CPR/ EAR if required.

e. If medical assistance is available, (probably unlikely in a survival situation) it is better to bring the medics to the location rather than move the patient.

f. Ensure the casualty does not move.

## Snake Bite (Cont)

1. **DO NOT WAS VENOM OFF THE SKIN AS RETAINED VENOM WILL ASSIST WITH IDENTIFICATION.**
2. **DO NOT CUT BITTEN AREA.**
3. **DO NOT TRY TO SUCK VENOM OUT OF WOUND**
4. **DO NOT USE A CONSTRICTIVE BANDAGE (i.e. ARTERIAL TOURNIQUET)**
5. **DO NOT TRY TO CATCH THE SNAKE.**



*Bandaging and Immobilisation for Snake Bite*

## Heat Stress and Sunstroke

**3029.** Heat stress occur when the body's cooling system fails to function properly through the effects of either exposure to a hot/humid environment, through excessive physical exertion or a combination of both. Three conditions of heat stress may occur, and in order from the least to the most serious they are;

- a. heat cramp,
- b. heat exhaustion, and
- c. heat stroke.

## Heat Cramp

**3030.** The signs and symptoms of heat cramp are, nausea and possible vomiting, dizziness, cramps in the stomach, arms and legs, muscle twitching and a feeling of weakness.

**3031.** Heat cramp should be taken as a warning that a more serious condition may develop if treatment isn't given promptly. Rest the patient in a cool shady area if possible (at least, provide cover from direct sunlight) and replace lost fluids by giving small but frequent drinks of water. Place a cold compress over the affected muscles (ice if you have it) and keep the patient at rest.

**3032.** In a survival situation the condition may have been caused by over exertion and it may be necessary to employ the victim on light duties only for some time until completely recovered.

## Heat Exhaustion

**3033.** Heat exhaustion occurs when the body is gaining more heat than it is losing and the temperature regulating system is starting to break down. The signs and symptoms are a feeling of weakness and exhaustion, feeling hot and tired, excessive sweating, cramps, rapid pulse and breathing and may suffer a lack coordination and mental confusion.

**3034.** Treatment is to lay the victim in a cool shaded place, preferably one with good air circulation. Remove any excess clothing and gradually cool the body by sponging with water. Replace fluid loss and rest the patient as for heat cramp. If the person does not respond.

## Heat Stroke

**3035.** This is a medical emergency and occurs when the temperature regulating system has failed and the body cannot cope with any more heat gain. The signs and symptoms are a pounding and rapid pulse, skin is flushed but dry, the victim ceases to sweat, a sharp rise in temperature (40%C or more), nausea and vomiting, headache, disorientation, seizures and unconsciousness.

**3036.** The victim's temperature must be lowered quickly and to do this, remove to a shaded location and douse with cold water (if unconscious, place in the recovery position). Loosen and / or remove any tight or excess clothing, fan the patient to increase the air flow. To speed up the cooling process, apply cold packs (or ice if you have it) to areas that contain large blood vessels such as the groin, armpits and neck. When the patient is fully conscious, give fluids to drink and continue the cooling until the body feels cool to the touch. If possible, seek medical aid immediately.

## Dehydration.

**3037.** Dehydration can be caused by a loss of water from the body due to persistent vomiting, diarrhoea, excessive sweating, severe burns, or increased urination. It can also be caused by a less than required intake of water.

**3038.** Symptoms of mild dehydration are dry skin, tongue & lining of mouth becomes dry, listens, eyes sunken, urine dark & small in volume, and confusion and coma in severe cases.

**3039.** Treatment is to sit them down in the shade, loosen any clothing and give them small sips of water.

## Hypothermia and Frost Bite

**3040.** Hypothermia is again a failure of the body's temperature regulating system, but this time, through extreme/ prolonged exposure to cold. The body loses all of its surface heat and therefore the deeper tissues and internal organs can cool more rapidly. It can happen through immersion in very cold water, trapped in snow or through severe wind chill. The symptoms include a severe drop in temperature (below 35%C) lack of coordination, a slow pulse, confusion, increasing slowness in mental and physical responses, cramps, faintness and unconsciousness.

## Hypothermia and Frost Bite (cont)

**3041.** If the victim is unconscious, place in the recovery position and check breathing and pulse. The body must be dried if wet and warmed by placing the patient in a warm dry place and wrap in blankets (possibly with another person in beside) to gradually raise the temperature. If conscious, give warm sweet drinks (not alcohol) and continually monitor progress. Seek medical assistance if possible.

**3042.** Frostbite is the result of severe freezing of tissue, usually effecting the extremities of the body such as fingers and toes. It is a serious injury and may effect blood circulation to the limbs resulting in amputation. Frostbite may be detected by a sudden whiteness, numbness and / or tingling of the skin, the area is firm to the touch and has a waxy appearance and may be blistered. For deep frostbite, the skin will be extremely white and completely hard to the touch. The affected area will be painless until warmed and then pain could be quite intense.

**3043.** Treat by removing any constrictive clothing and warm the area gradually using body heat only. Never apply direct heat, massage or rub with either water or snow. Give warm sweet drinks (not alcohol) and seek medical aid if possible.

## Shock

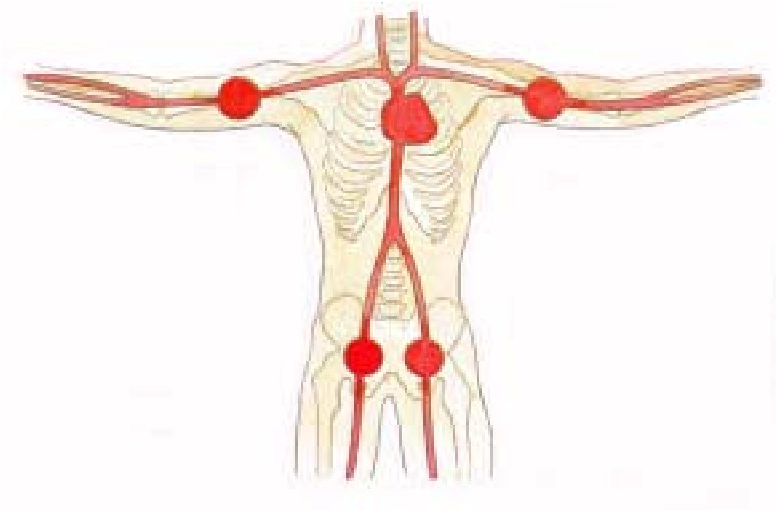
**3041.** Shock is a serious life threatening condition and is usually the result of a serious injury/ illness from either burns, severe blood or fluid loss or pain. The condition does not usually occur immediately upon injury, but gradually develops over a period of time. Signs and symptoms may be rapid breathing, weak and rapid pulse, pale and clammy skin, nausea and vomiting and faintness/ dizziness.

**3042.** Treatment is to lay the patient down and elevate the feet (above the level of the heart) to assist blood supply to the brain. Treat any fractures and external injuries, stop bleeding and cover burns with sterile dressings. Cover with a blanket and continually monitor breathing and pulse rate and try to ease the level of pain. Reassure the casualty if conscious and if you are sure that there are no internal injuries, give warm sweet drinks to assist the replacement of lost fluid.

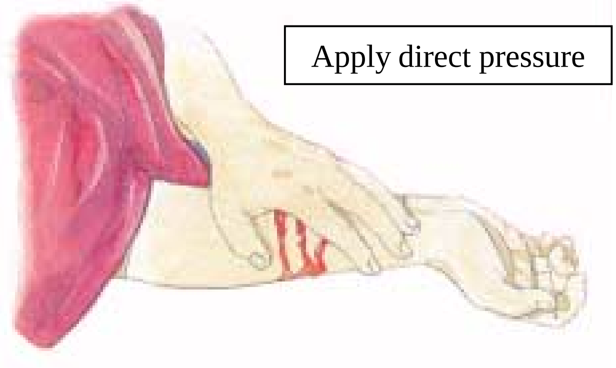
**NOTE: If legs fractured, do NOT elevate.**

**ANNEX A TO**
**SVA 3**

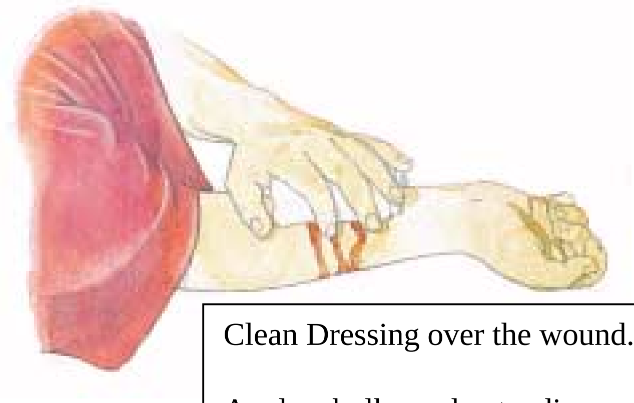
## PRESSURE POINTS & CONSTRICTIVE BANDAGE



### Direct Pressure

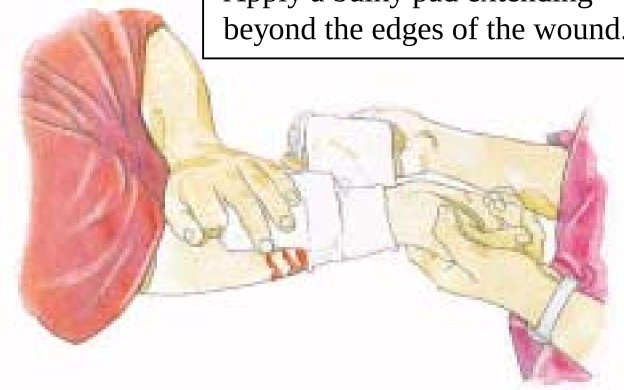


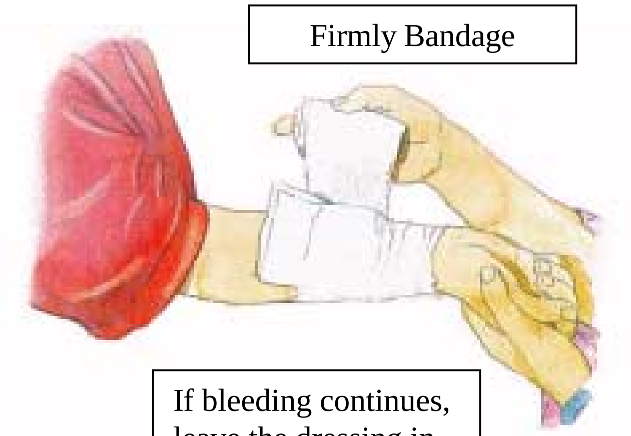
Apply direct pressure



Clean Dressing over the wound.

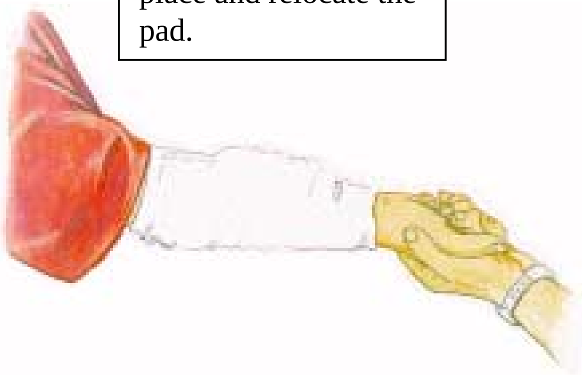
Apply a bulky pad extending beyond the edges of the wound.





Firmly Bandage

If bleeding continues, leave the dressing in place and relocate the pad.

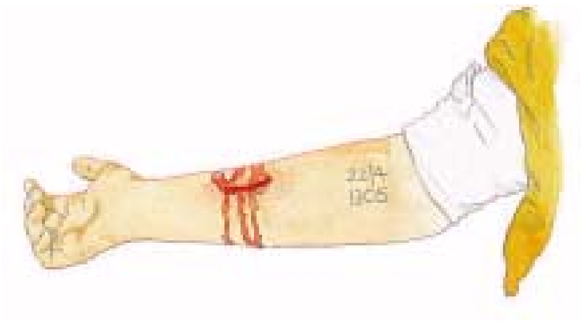


**Do not disturb the pads or bandage once the bleeding is controlled**

## Constrictive Bandage

1. Select a strip of firm cloth, at least 7.5 cm wide and about 75 cm long. This may be improvised from clothing or a narrow folded triangular bandage.

2. Bind the cloth strip firmly around the injured limb above the bleeding point until a pulse can no longer be felt beyond the contrictive bandage and the bleeding is controlled. Tie firmly.



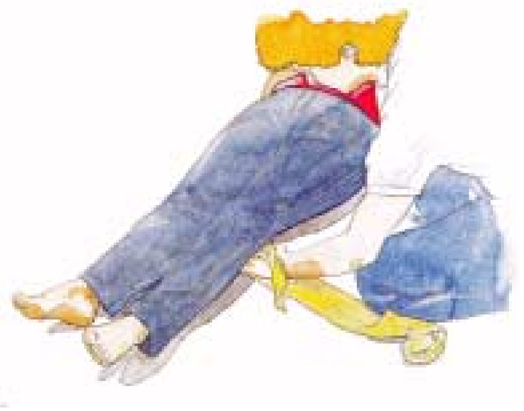
3. Note the time of application. After 30 minutes, release the bandage and check for bleeding. If there is no bleeding, remove it. If bleeding recoimmences, apply direct pressure. If this is unsuccessful, reapply the contrictive bandage, and recheck every 30 minutes.

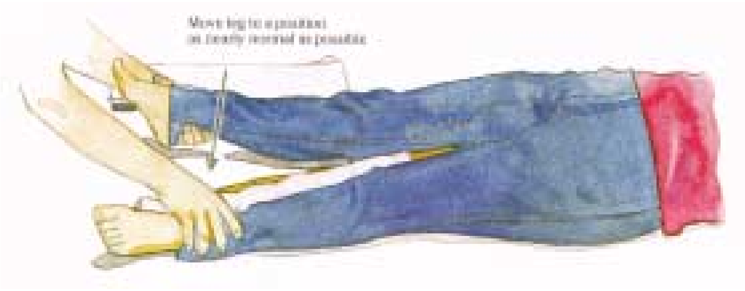
4. **Ensure that the bandage is clearly visable and inform medical aid of the location and time of its application.**

**ANNEX B TO**
**SVA 3**

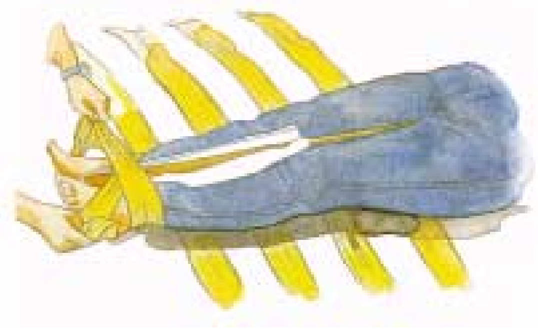
## TREATMENT OF FRACTURES

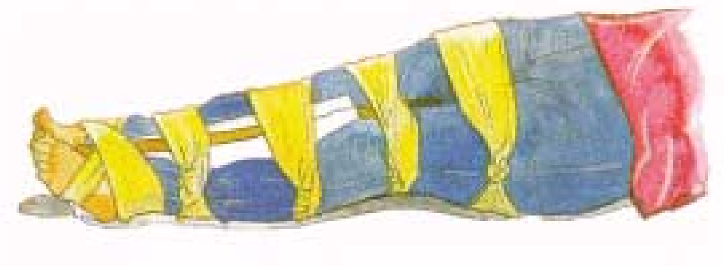
Fracture to hip or upper leg

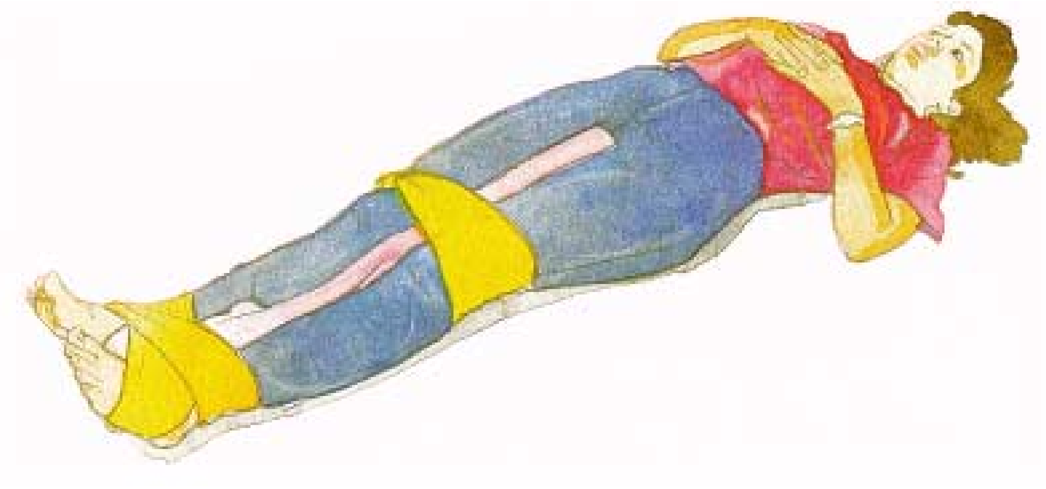



Move leg to a position
as nearly normal as possible

Managing a fracture thigh or leg if expert assistance is delayed

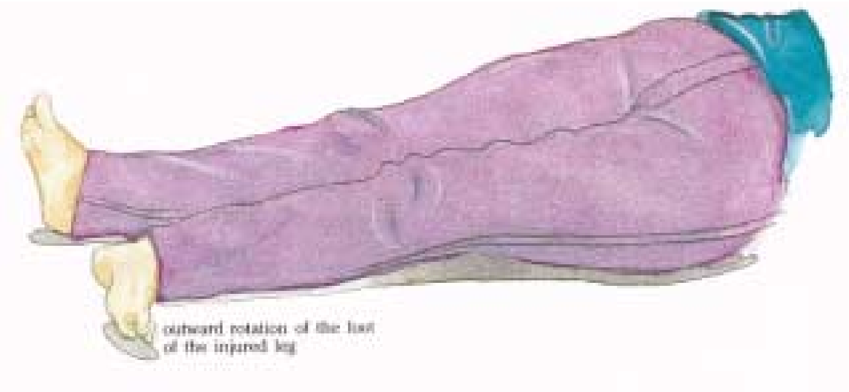


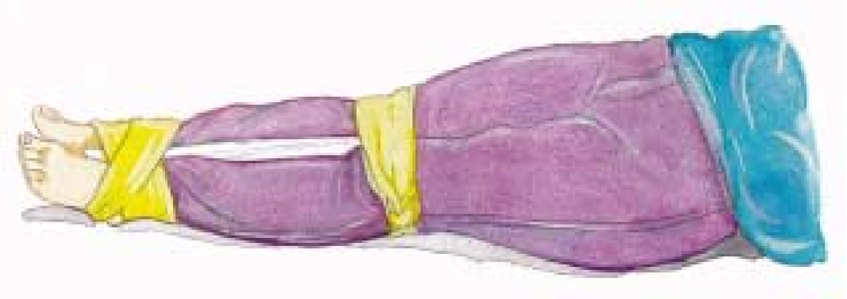




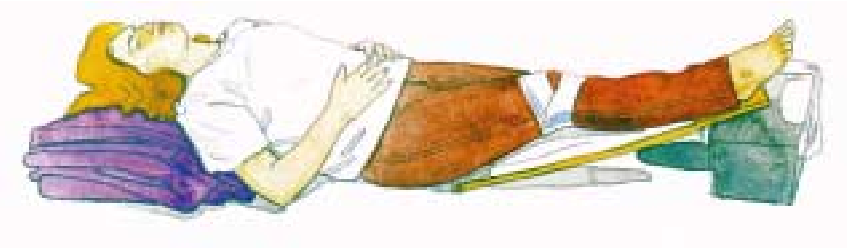
Managing a fractured thigh or leg if expert assitance is on hand

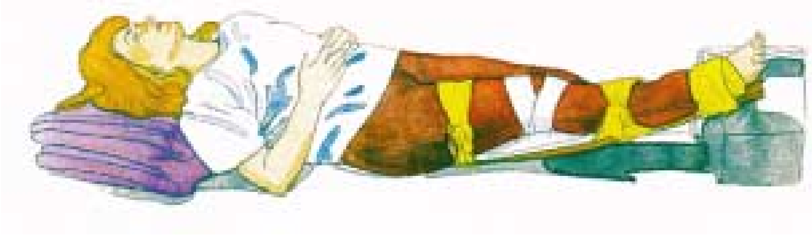
Fractured neck of the thigh bone



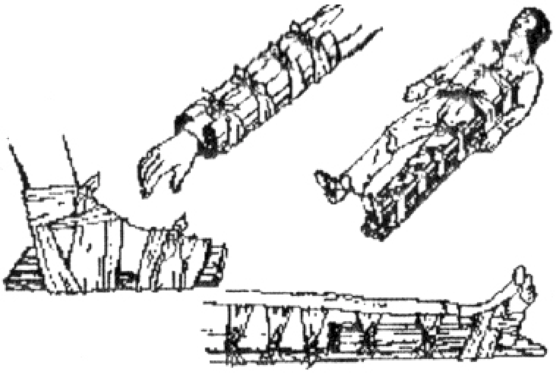


Managing a fractured Kneecap



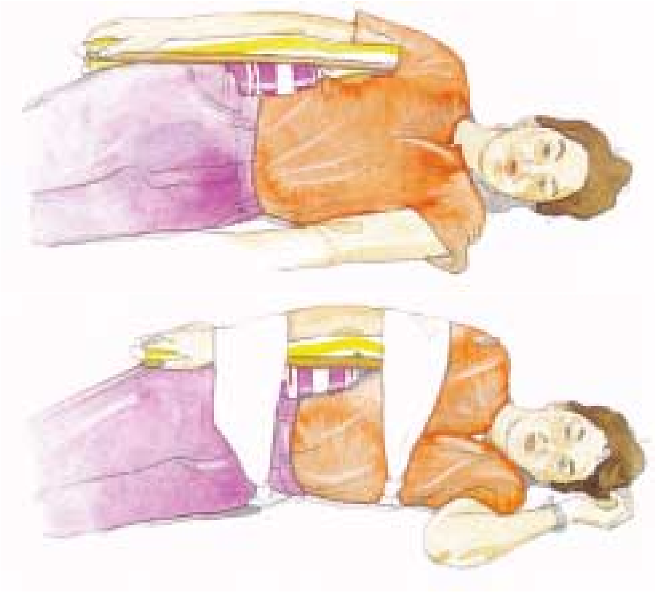


Improvised splints

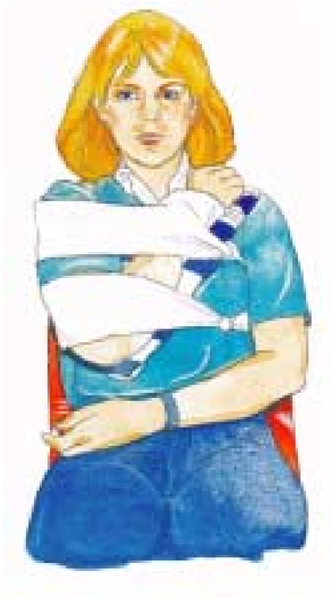


## Managing a fractured upper arm

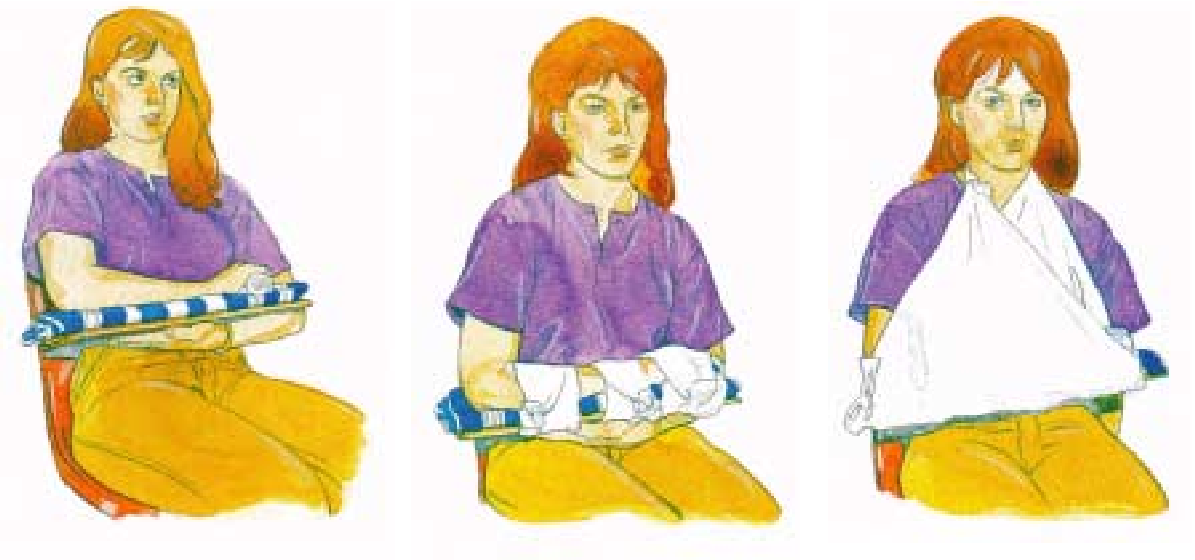
Close to elbow



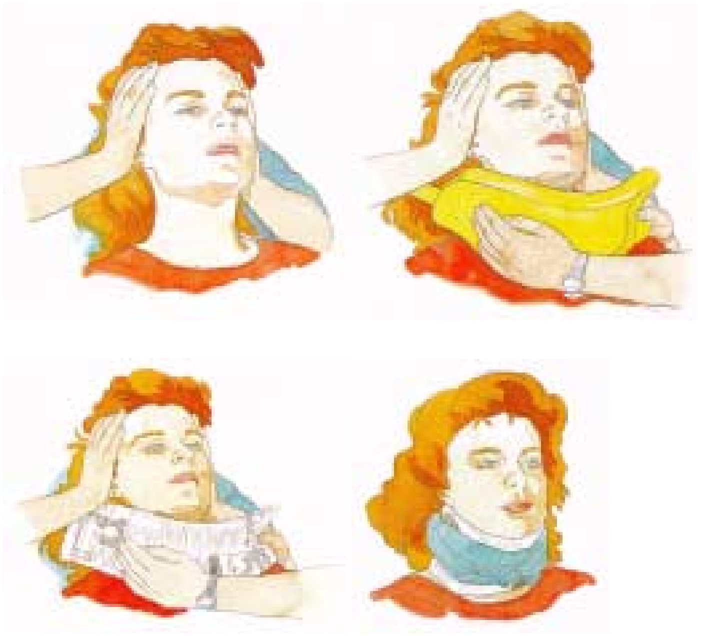
Not close to elbow



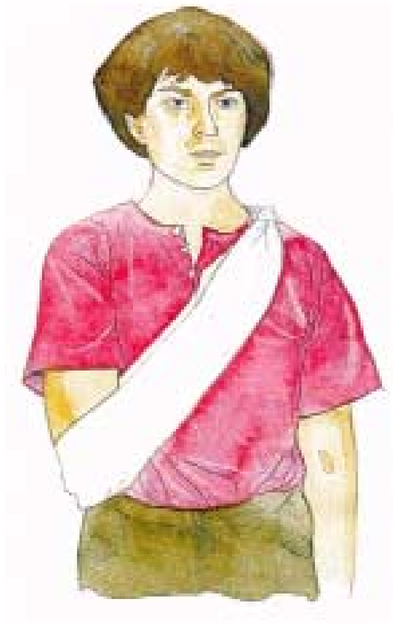
## Fractured Forearm



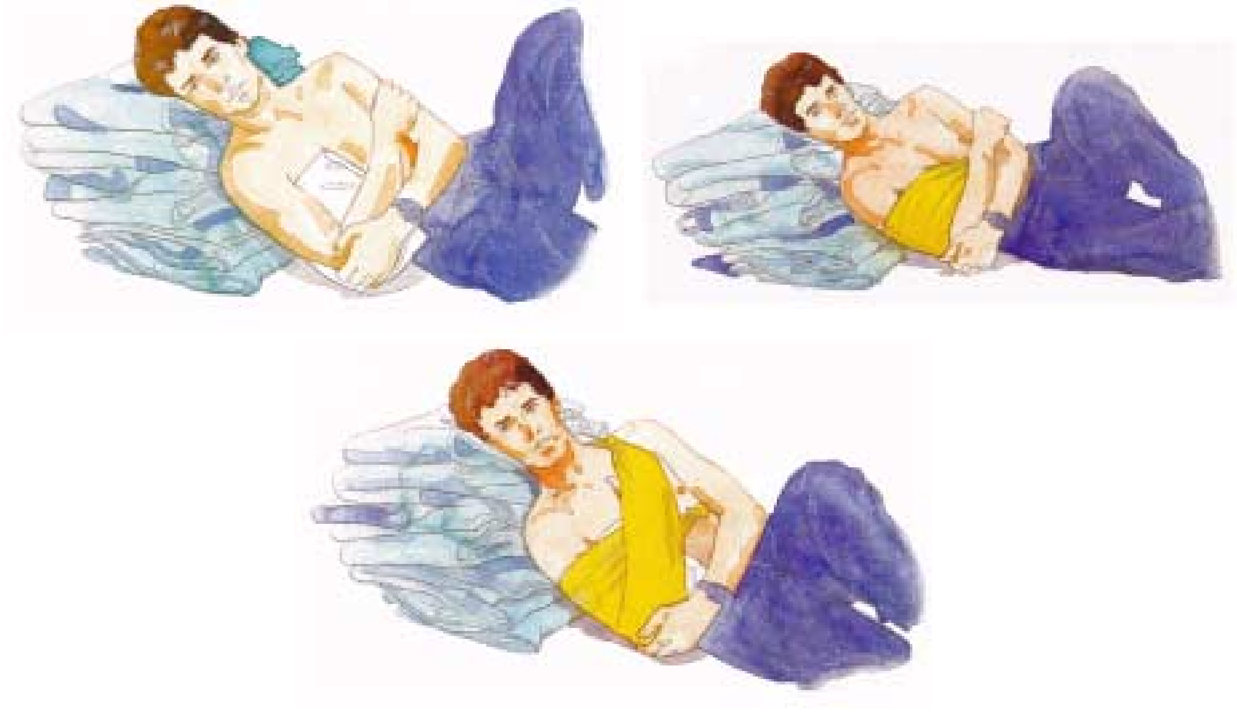
## Fracture of the neck – Cervical collars



## Fractured Finger or Thumb



## Fractured Ribs

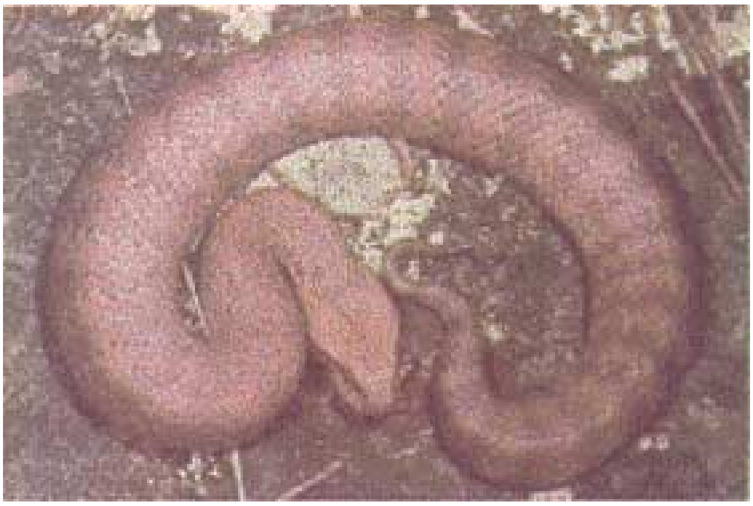


**ANNEX C TO**
**SVA 3**

## VENOMOUS AUSTRALIAN SNAKES

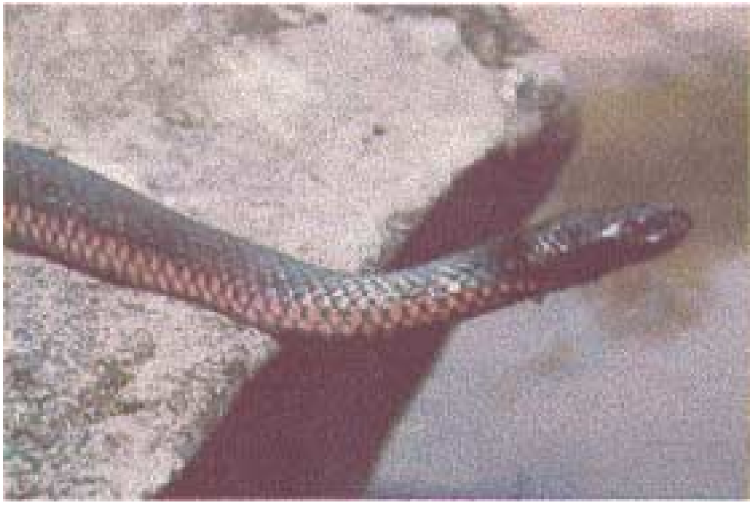
### Death Adder

Is brownish, reddish or grey with darker banding, thick-bodied and average 45-60 cm, in sandy areas of much of Australia, Papua New Guinea and some nearby islands. **Well camouflaged; highly venomous,** but not so dangerous as the Tiger Snake and Taipan



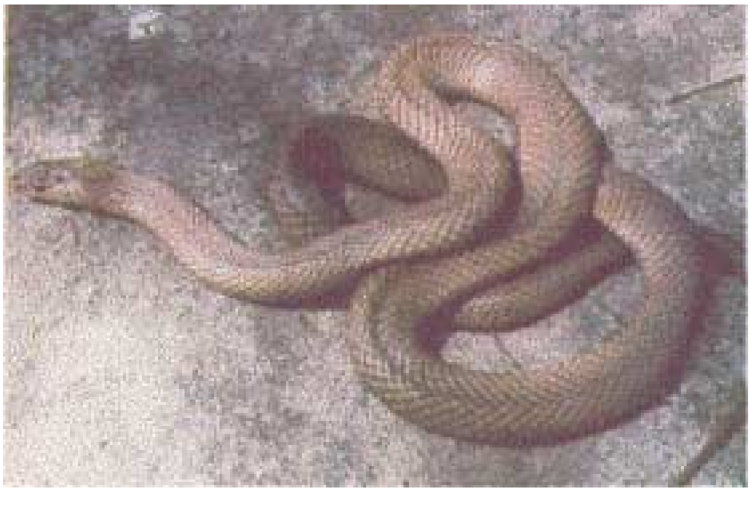
### Australian Black Snake

Average 1.5-2 m, slender, bluish-black with a bright red belly, in or near fresh water over much of Australia. There are several different kinds. **Very rarely fatal, it flattens its neck when aroused.**



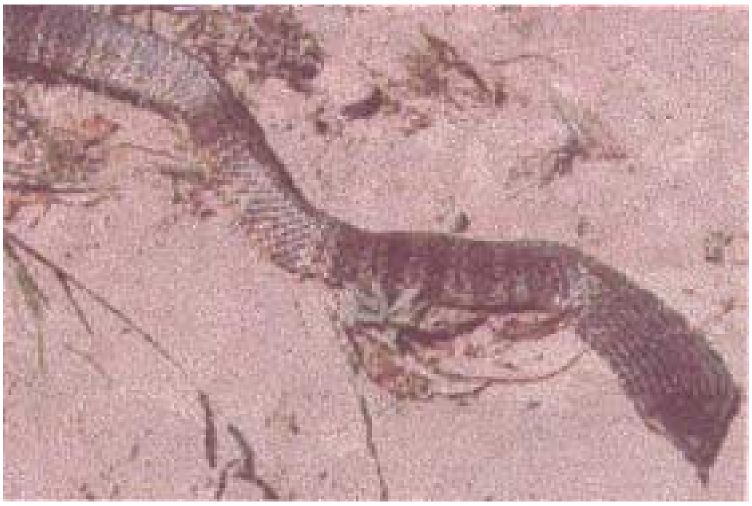
### Australian Brown Snake

Is slender, yellowish-grey to brown with a pale belly and averages 1.5-2 m; in drier parts of Australia and Papua New Guinea. There is more then one kind. **Aggressive and very poisonous.**



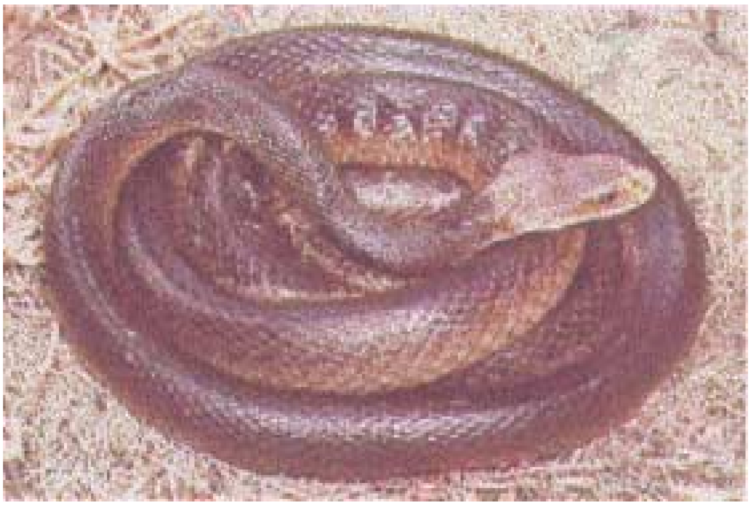
**Tiger Snake**

Averages 1.3-1.6 m, thick-bodied, large-head, tawny-ochre banded with greenish-yellow, grey or orange-brown; in semi-arid areas of Australia and in Tasmania. **Aggressive and very poisonous.**



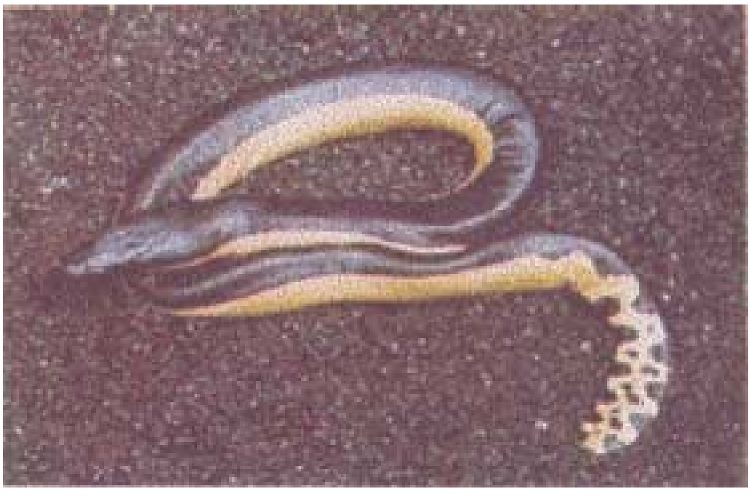
**Taipan**

Is uniformly light to dark brown with yellowish-brown on the sides and belly and may grow to 3.5 m; in open and forested parts of northern Australia. **Ferocious when provoked, dealy poisonous.**



**Sea Snake**

Occur in the Indian and Pacific Oceans; some are partly terrestrial, in estuaries and coastal swamps. They vary in colour and size; average 1.3-1.5 m with a flattened paddle-like tail. **Not aggressive, but some are the most venomous snakes of all.**



# SURVIVAL ADVANCED

## SVA 4 - FOOD PREPARATION (VEGETATION)

## 1 PERIOD

### Introduction

**4001.** Some forms of edible wild vegetation have been mentioned in SVP Lecture Three and those groups and their food properties will not be repeated here. This paper is more specific in how to find, identify and prepare native plants for food. Annex A shows a comprehensive list of edible wild vegetables.

**4002.** There are said to be more than 300,00 different kinds of wild plants in the world. Thousand occur in Australia, and hundreds are eaten by the Australian Aboriginals. Plant food includes - fruits, seeds, leaves, shoots, roots, tubers, bulbs, nectar, algae and fungi. The best way to learn which are safe to eat is to have someone qualified to point them out.

### Taste Testing Unknown Plants

**4003.** Two poisons are commonly found in vegetables and both can be easily detected by smell, feel and taste. The first of these is prussic acid (cyanide) and has the taste of almonds. The second is oxalate of lime (oxalic acid) which is found in some lilies and yams and causes a burning sensation in the mouth. Unless you are absolutely sure that the vegetation you are about to eat is safe, carry out the 'taste test' before proceeding.

**4004.** This test is controlled, gradual introduction of an unknown species into the body's system. Throughout the period of introduction, close observation should be kept for any abnormal reaction. The test is made up of the following steps:

a. Step 1- *Smell* The leaves of the plant should be crushed and smelt. If an almond or peach smell is evident, it may be due to Prussic Acid, and the species should be discarded.

b. Step 2; *Touch* A small amount of the fruit/berries should be rubbed lightly on an area of tender skin (eg under the arm). If irritation or a rash results, the species should be discarded.

c. Step 3; *Taste* The food should be touched with the lips, the corners of the mouth and the tip of the tongue. If there is no reaction after two minutes, a small amount should be chewed and spat out. If any irritation or extremely bitter taste results within 30 minutes, the specie should be discarded.

## Taste Testing Unknown Plants (cont)

d. Step 4; *Eating* If possible, the food should be boiled in several changes of water before swallowing. Only a small portion of the specie should be chewed and swallowed. The food should be discarded if within 4 hours it produces:

i a sore mouth, tongue or throat,
ii. repeated belching,
iii. nausea or sickness,
iv. hallucination or dizziness, or
v. pain in the lower stomach or abdomen.

After about sixteen hours and no ill effects are experienced, you can consider that the food is probably quite edible and will not cause any serious problems.

## IMPORTANT NOTE

**4005.** Testing a foreign plant for edibility should be carried out by a responsible adult, NEVER BY A CHILD. Also note that the Standard Military Taste test is not 100% reliable. There are some toxic plants that will pass through the test.

**4006.** The edibility test must be carried out with food prepared in the manner in which it is to be eaten. This is because many properties of plants change when they are cooked.

**4007.** Only one food type per person is to be tested at a time to ensure that there is no compromise to the assessment.

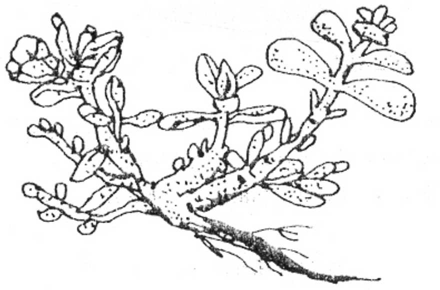
## Treating an Adverse Reaction

**4008.** An adverse reaction to inedible vegetables will probably start with an upset stomach, pain or one of the symptoms described above. Drinking warm water (about Cup of tea temperature) will relieve the pain but in more severe cases you must induce vomiting. This can be achieved by tickling the back of the throat with the finger. Another method is to swallow ground charcoal that may also absorb some of the poison. Further pain relief can be gained by swallowing a paste made from white wood ash and clean water.

**ANNEX A TO**
**SVA 4**

## EDIBLE LEAVES, ROOTS, TUBERS AND STALKS

PURSLANE (Pig Weed)

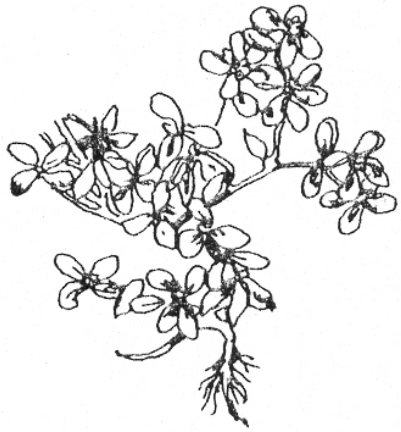


Found throughout Australia in both coastal and inland sand dunes and waste land.

Grows as a creeper with fleshy leaves and branches about 20cm long.

Leaves can be eaten raw or boiled and tastes like spinach. The seeds can be shaken out of the roots and if enough are collected may be ground to make cake - damper.

PIGFACE

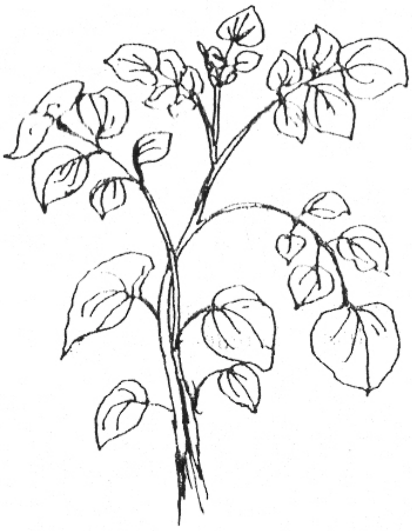


Found throughout Australia as for Purslane.

Grows similar to Purslane but has three sided, fleshy leaves and purple flowers.

The leaves must be boiled for eating and may cause a mild throat irritation in some people. Can be used as a salt substitute.

WATERCRESS



Found throughout Australia along the banks of waterways, including dry creeks or streams. Do not take it from near contaminated water because of possible liver - fluke.

The plant has 3 - 5 fleshy green leaves per stem and is rich in Vitamin C, phosphate, iron, potassium, iodine, sulphur and nitrogen.

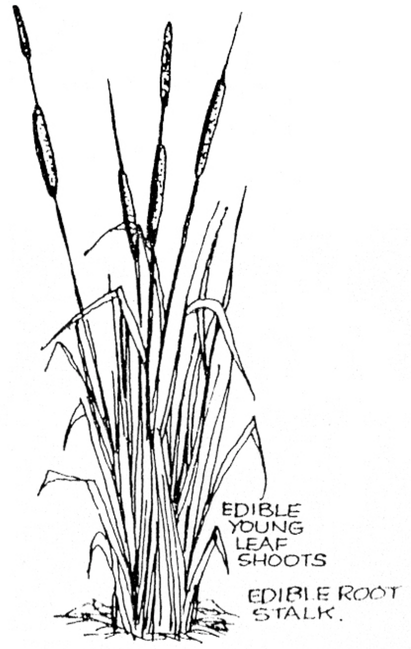
Wash the vegetable in clean water and eat it like a salad.

BULRUSH (Cat's Tail, Miranda)

Found throughout Australia in swamps, billabongs and along shallow waterways.

The leaves are long and slender and the flower head is a brown sausage shape, attached to a spear like shaft. The shoots of the plant are high in starch and contain some sugar.

The young shoots are pure white and can cut up and boiled or stripped of their outer covering and eaten raw. The taste ie similar to that of asparagus.

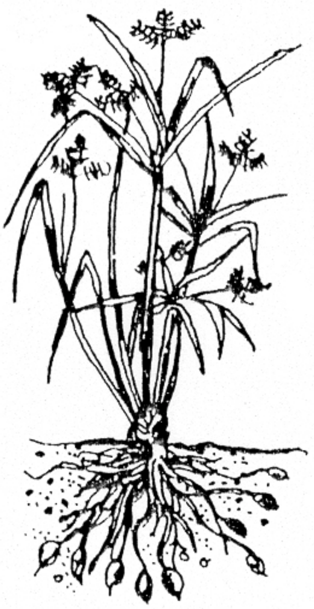


NUT GRASS

Found throughout all mainland Australian states.

This is actually a sedge and although seen as a pest to lawns and gardens the inland species are useful as food.

Pull the plant up by the roots to find the small tubers which can be roasted or eaten raw.

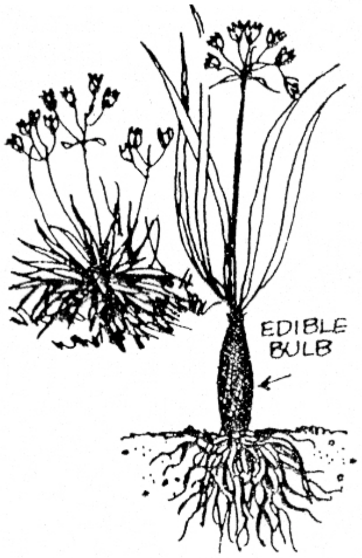


WILD ONION (Native Leek)

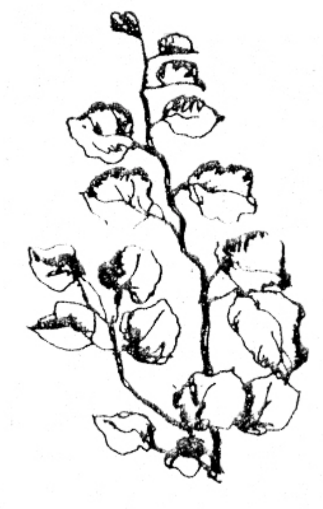
Found throughout Australia.

Consists of a small bulb with onion like leaves and a stalk of brilliant yellow flowers.

The bulb is the edible part that can be eaten as for an onion.



## SALT BUSH

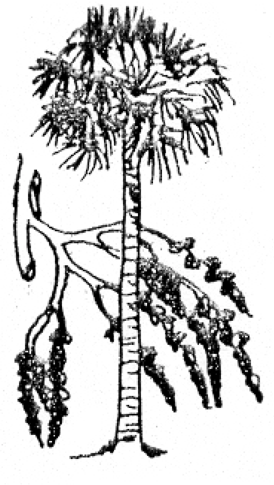


Found throughout Australia around salt marshes in inland areas and along the shoreline.

There are two species, the coastal 'Grey Saltbush' which grows to 1.5 metres and the 'Old Man Saltbush' up to 3 metres.

Saltbush leaves can be eaten raw but should be boiled as some species cause vomiting if they are not.

## CABBAGE PALM

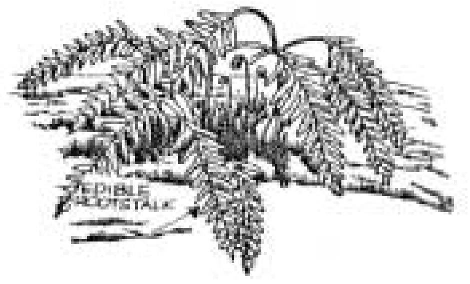


Found throughout all Australian mainland states.

The palm grows from 5 to 12 metres and provides two means of starchy food for the diet.

One method is to take the base of the young inner leaves which can be either boiled or eaten raw. The other is to finely chop up the pith of the young palm trunks, slowly boil and strain to make a starchy gruel.

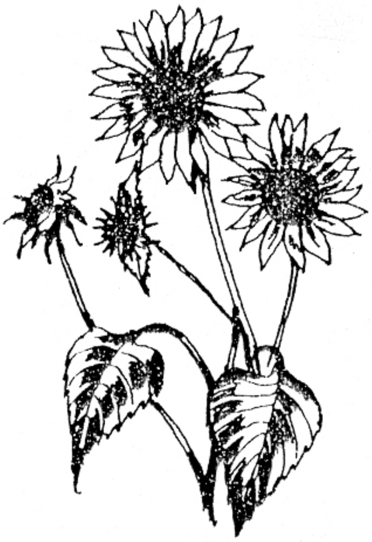
## TREE FERN



Found in parts of South Australia, Victoria, Tasmania, New South Wales and Queensland in damp eucalyptus forests and rain forests.

This plant grows from 3 to 4 metres tall and the stems and trunk contain a high starch content. Both parts of the tree may be baked and the pith can be steamed, sun dried and used as emergency rations.

## SUNFLOWER

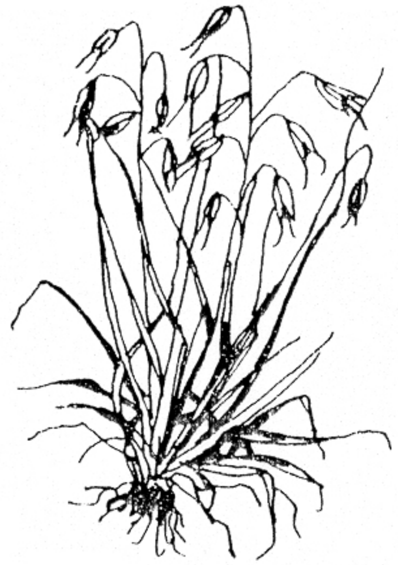


Found in the drier parts of South Australia, Victoria, New South Wales and Queensland.

Although a cultivated plant, it is common in the wild and has a slender stalk with a large yellow head with visible black seeds.

The unopened heads of the plant may be boiled and eaten like artichokes. The seeds must be hulled and then can be either roasted and ground to make a 'coffee' type drink, eaten raw like peanuts or mashed into a paste and baked as cakes.

## WILD OATS (Black Oats)

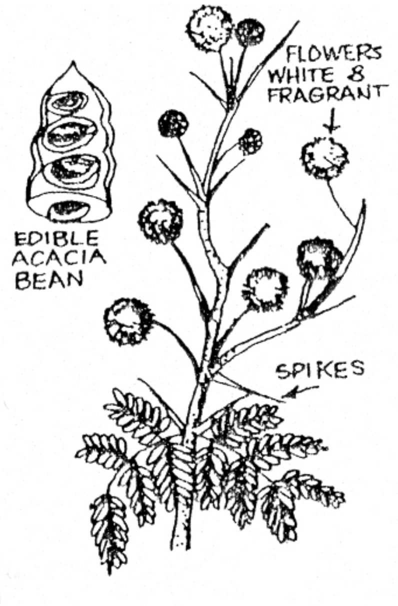


Found throughout Australia around the fringes of areas where crop cultivation either is or has taken place at some time.

It grows as a grass like weed similar to cultivated oats and provides similar food properties.

Grind the seeds into flour and use this to make either cakes or damper.

## SWEET ACACIA

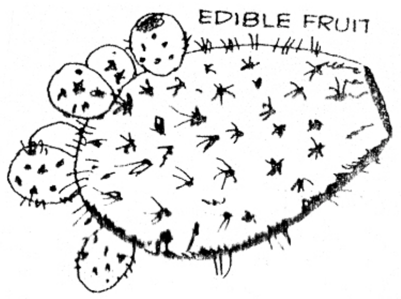


Found in the arid areas and deserts of mainland Australia.

It is a spiny, bushy shrub up to about 3 metres in height and for some species, to tree size.

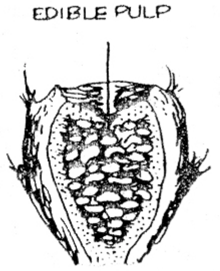
The edible parts are the beans that are found hanging from the branches and when pulverised can be cooked like porridge. Some acacias produce an edible resin that can be chewed like gum.

PRICKLY PEAR



Found in drier areas of mainland Australia.

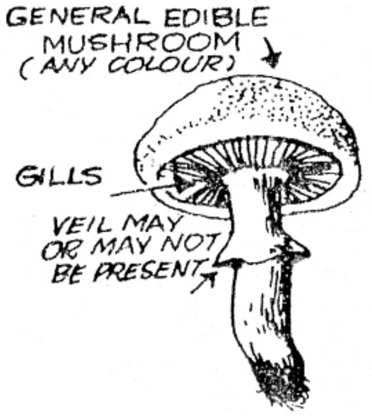
The prickly pear is a cactus with a thick stem and large, flat and fleshy leaves with bright red or yellow flowers.



The egg shaped fruit which grows at the top of the leaves is can be peeled and eaten raw and the leaves may also be either raw or sliced up and cooked. The stem of the plant will also yield water. Beware; if the liquid is milky it means that the plant is not prickly pear and is poisonous.

## EDIBLE FUNGI

FIELD MUSHROOM

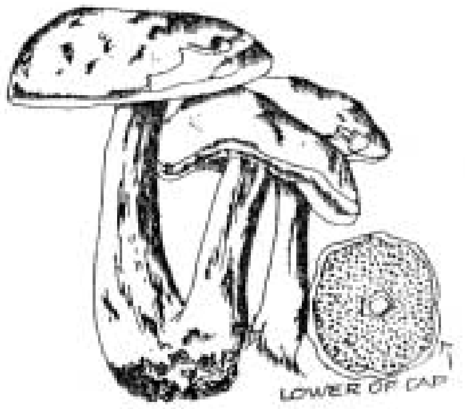

GENERAL EDIBLE MUSHROOM (ANY COLOUR)
GILLS
VEIL MAY OR MAY NOT BE PRESENT

Found throughout Australia usually in grassy areas.

These are normally a pale cream or white with pink gills which turn to chocolate brown when mature.

The plant is very nutritious and the whole of it may be eaten raw, fried or added to a stew or sauce.

HORSE MUSHROOM



Found throughout eastern Australia in grassy areas and among other rotting vegetation.

This is larger than the field mushroom, with the cap up to about 20cm. The gills are also paler, usually a creamy colour.

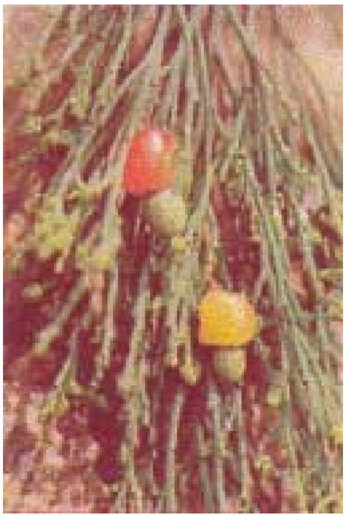
Eat as for the field mushroom but because it is a little tougher, it should be peeled first.

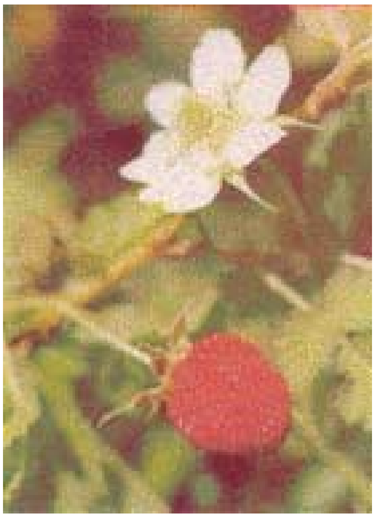
NOTE; There is many other edible fungi in Australia but unless you are absolutely sure that they are safe, do not eat them because some contain poisons which cause disastrous side effects and can be fatal.

# NATIVE FRUIT

Exocarpos cupressiformis

Native cherry

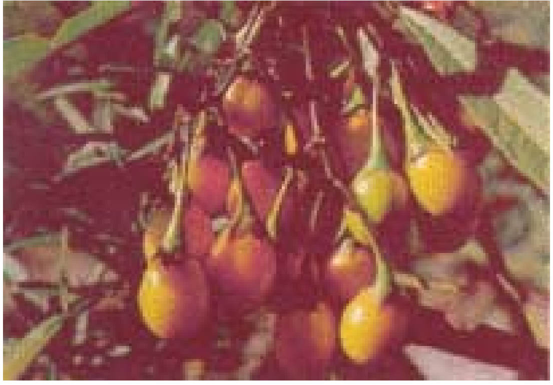




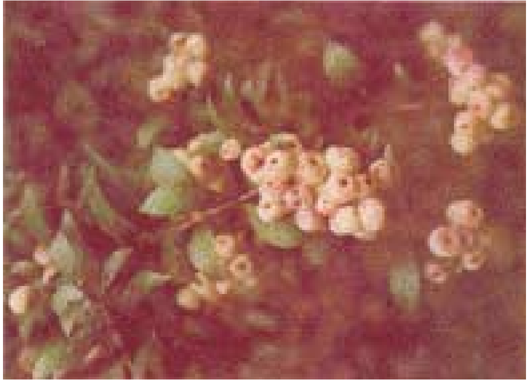
Rubus rosifolius

Native raspberry

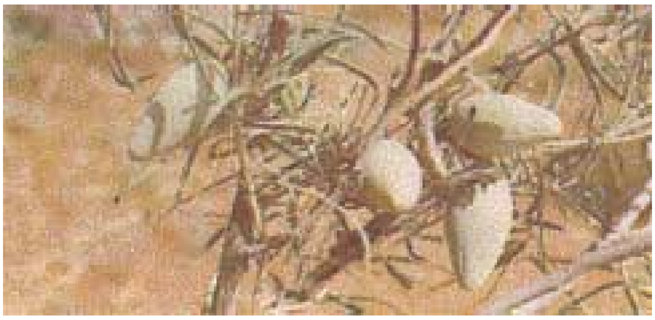
Solanum aviculare – Kangaroo apple



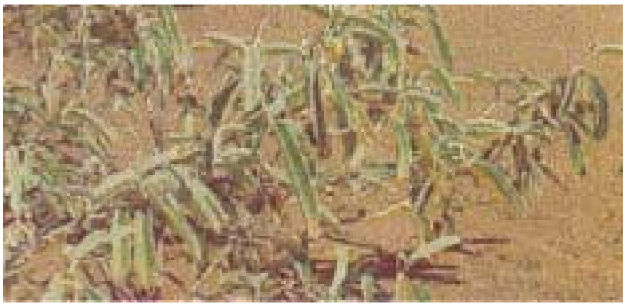
Eugenia smithii – Lillypilly



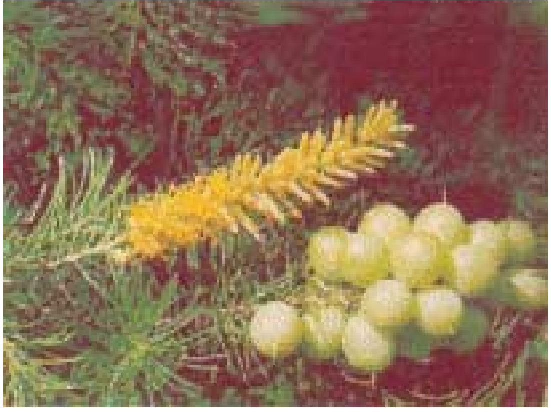
Leichhardtia australis – Native Banana



Solanum centrale – Desert rasin



Persoonia pinifolia - Geebung



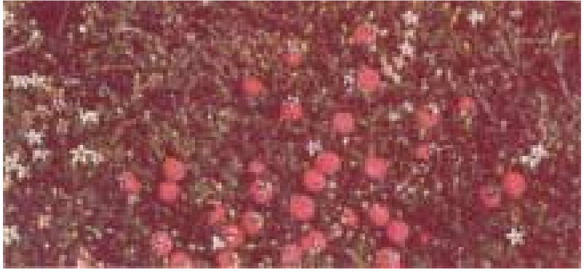
Leucopogon montanus – Snow beard-heath

Santalum acuminatrum – Quandong

Coproma pumila

Enchylaena tomentosa – Barrier saltbush

Pentachondra pumila – Carpet heath



Ficus platypoda – Native fig

Crinum flaccidum – Darling lily

Triglochin procera
Water ribbon

Microseris Ianceolata
Yam daisy, or
Native dandelion

# SURVIVAL ADVANCED

## SVA 5 FOOD PREPARATION (ANIMAL & MARINE)

## 1 PERIOD

### Identifying and Procuring Food

**5001.** The acquisition of animal meat in the wild, is often costly in terms of time and effort required and the survivor must calculate if such time spent will interfere with the ultimate objective, rescue, when other more easily obtainable food is available. Having made the decision however, the flesh of almost all Australian animals, birds, reptiles and fish will provide the protein necessary for survival as referred to in Survival Proficiency Lecture 3 (SVP - 3). Some examples are:

a. CAT - tastes like hare,

b. FLYING FOX - roasted is as succulent as a suckling pig,

c. SNAKE - roasted provides white meat of a delicate flavour.

**5002.** You would not say they were palatable simply because the source of the meat to your mind would be repulsive. The rule is that all birds, mammals and reptiles are safe to eat, but not all are palatable.

**5003.** Lizards and witchetty grubs are also recommended. Most lizards, especially the goanna, are good to eat. Witchetty grubs may be found in wattle trees, blackboy trees, red gums, candle-nuts, milky pines and some eucalypts. To catch them either:

a. Hook them from the hole which is trickling sawdust using a bent wire,

b. Tear up a small wattle to reveal the grub, or

c. Dig and explore the root system.

To eat them:

a. Withdraw the entrails by holding the head between the thumb and fore-finger and pinch the skin around the anus with the other hand. then pull.

b. To eat raw, bite off the body close to the head.

To cook them either toss them into hot ash and gut them after or gut, remove the head and fry.

Witchetty Grubs

**5004.** Other gastronomic delights include: March flies, Wombat, Bandicoots, Possums, Emus, and Snake.

***NOTE:***

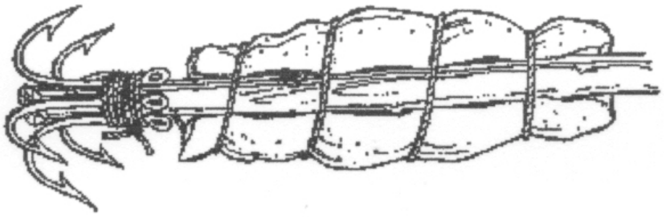
**1. When killing a snake, if you use a stick ensure that it is green and not dead, as a dead stick will easily break.**

**2. Even venomous snakes are safe to eat, provided you cut off the head.**

**5005.** Some methods of trapping and catching animals and fish have been shown in SVP - 3 and Survival Advanced Lecture 2 (SVA - 2). The other method is the use of weapons and in the absence of fire arms, these must be improvised. Some fish spears are shown in SVP - 3 and weapons for use against land animals are at Annex A.

**5006.** SAFETY NOTE: all traps and weapons which are designed to either kill and / or maim are as equally dangerous to humans as to animals and therefore extra care needs to be taken and warnings placed where necessary. For example, a simple sign, known to all members of the party, placed on the ground or in a tree, may indicate the presence of a pit or stake trap.

**5007.** Water is also a source of food. Edible sources are, yabbies, oysters, scallops, abalone, cockles, and mussels. Simply boil for about 10 minutes, then bite. Squid and cuttlefish are edible after boiling or frying. Shrimp is also another source of food.



**CAUTION.**

**5008. NEVER RISK YOUR LIFE WITH QUESTIONABLE SEA FOOD.** Never eat fish with slimy gills, sunken eyes, flabby flesh or skin, or an unpleasant odour. If the fish remains dented when you press your thumb against it, the fish is probably safe.

## Preparation Techniques

**5009.** Nearly all parts of the animal carcase are useable, even the parts you cannot eat. Hides can provide leather, sinews can be turned into string and you can use bones (after being boiled for soup) to make fish hooks and so on. The Aboriginal method of simply baking an animal whole (skin, guts and all), is not sufficient to prepare carcase for eating and storage in a survival situation. This requires four steps that are explained below and illustrated at Annex B.

a. Bleeding; This is done by hanging or placing the animal (or fish) with the head down and cutting through the large blood vessels in the throat. Bleeding is essential to improve the taste and if the meat is to be preserved for later use.

b. Skinning; Most land animals can be skinned in the same manner as shown at Annex B. The method is to cut down along the back legs and then, keeping the sharp edge of the knife facing outwards (so as not to pierce the gut), cut downwards through the belly skin to the neck. Slit the fore legs as for the rear and flay the skin off. Skinning is easier done while the animal is still warm and if it is a male, remove the testicles as soon as possible, as these will taint the meat if left to long. Most birds are plucked to remove feathers and fish can be scaled, however, larger species of both may also be skinned.

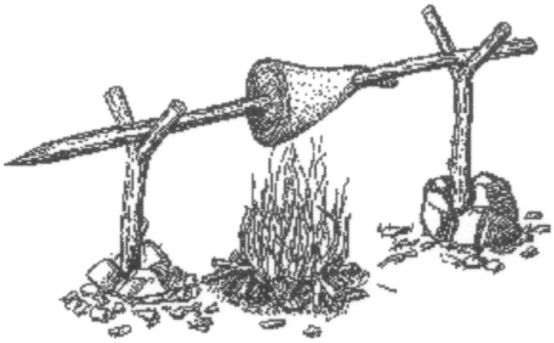
c. Gutting; When removing the gut, care must be taken not to pierce the internal organs. Keep the animal suspended and starting between the rear legs, slit the flesh of the abdominal cavity all the way down to the breast bone. Maintain a slight pressure against the abdomen with the backs of your hands and forearms so that the gut can spill out slowly. Recover the kidneys and liver and then free the other organs from the cavity making sure that the anus is completely clear (poke your hand or finger through it to make sure). The heart and lungs must be removed and these are contained within a membrane in the chest which may be missed sometimes in small animals. Fish are cleaned by cutting from the vent, along the belly through to the gills. All of the gut including the gills can then be stripped out in one piece. Sometimes the recoverable offal from a fish is the egg sac (roe) which can be fried as a delicacy. With fish, be sure to slit the membrane along the inside of the backbone and remove any blood that has become trapped there.

d. Butchering; Small animals (rabbits, possums etc.) and birds can be simply cut up into sections, such as legs, upper body and lower body. Fish can be filleted, but in a survival situation this may waste valuable meat along the back bone, so they should be either left whole or, if large, cut through the back bone into chops. Larger animals however, need to be jointed for cooking and preserving and this is illustrated at Annex B.

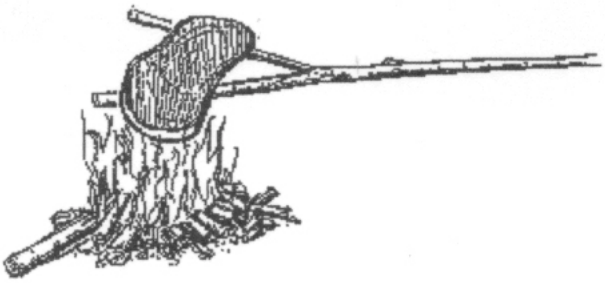
## Cooking

**5010.** All meat and some species of gathered foods must be cooked before being eaten. Cooking helps destroy bacteria, parasites and toxins and makes the food more palatable. In this regard, baking or boiling are the most efficient methods. The are four basic methods used to cook food:

a. Roasting - can be cooked on a stake over a hot fire. The meat must be continuously turned, which makes this style labour intensive and time consuming.



b. Grilling - thin slices of meat grilled over a fire. The meat must be turned over at regular intervals. Very economical and quick.



c. Boiling - helps to tenderise the meat. Only problem is that boiling need a container and a supply of fresh water.

d. Baking - two methods of baking are:

   i. Hot coals, or

   ii. Earth Oven Cooking.

## Food Preservation Methods

**5011.** In areas where food is not plentiful, it will be necessary to preserve what you have for consumption later. While vegetation will keep for a reasonably long time without much attention, animal flesh requires a good deal more time and effort to stop it from rotting or deteriorating and several methods are described below.

a. Strip drying; This method is good in hot and dry areas and is done by cutting the meat into thin strips and hanging it either on a rack or in a tree so that the maximum surface area is exposed to the sun and breeze. Guard the meat to keep off scavengers and flies, if they are about.

## Food Preservation Methods (cont)

b. Smoking; In wet or humid climates, this will achieve similar results to strip drying and the preparation of the meat is the same. Prepare a rack or hanger on which to place the flesh about one metre above a smouldering fire, (shown at Figure 1), which must burn dry, non oily timber and not so hot that it will cook the meat.

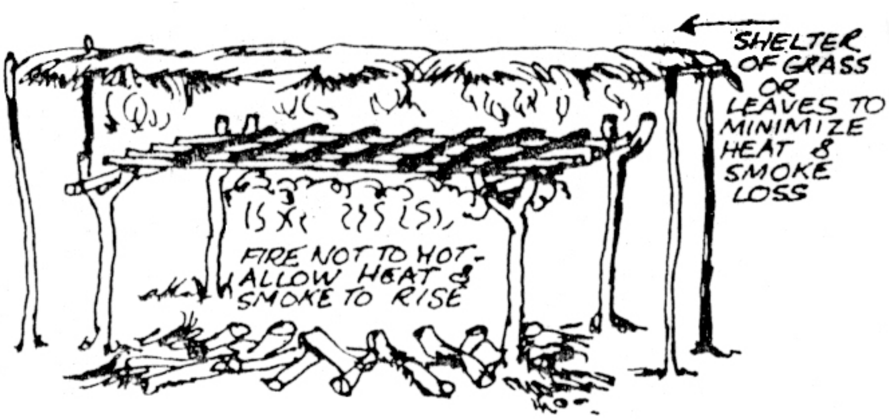

SHELTER OF GRASS OR LEAVES TO MINIMIZE HEAT & SMOKE LOSS
FIRE NOT TO HOT- ALLOW HEAT & SMOKE TO RISE

*Figure 1 - Smoke Drying Meat*

The flesh will feel crisp and dry when ready and must be kept that way as it will become mouldy and rotten if it becomes damp.

c. Salting/ Brining; Dry salting of meat is only really effective in cooler climates and is done by rubbing a thick crust of salt onto the pieces and allowing them to drain. The process will take several days and the pieces of meat must be turned and re-salted regularly and protected from flies. If the ingredients are available, wet salting (or brining) is a preferable method. The meat is heavily salted and then submerged into a solution of water and either vinegar or citrus juices, (spices like cloves may be added if you have them). The flesh must remain totally submerged for several days until completely pickled.

d. Refrigeration; This can only be achieved where overnight temperatures allow(-5%C or less) such as the high country or in some parts of the inland. The meat must be thoroughly chilled through overnight (can be assisted by putting it into a cold stream or pool) and then before sun rise, wrapped securely in an insulating material (blanket / sleeping bag or paperbark) it will remain 'fresh' for about three to four days, provided the day time temperature isn't to great.

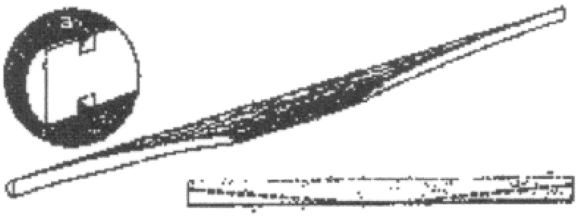
e. Freezing; Really only an option above the snow line, freezing can be achieved by wrapping up small pieces of flesh and allowing them to freeze solid in ice water. This method of preservation will keep meat indefinitely.

**ANNEX A TO**
**SVA 5**

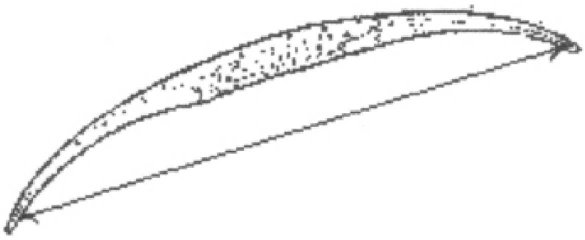
# SURVIVAL WEAPONS

## Bow and Arrows

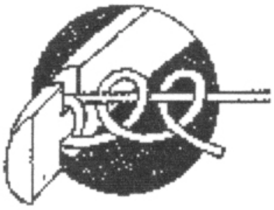
### Shaping the bow and fitting the string



Fashion the stave so that it is 5 cm wide at the centre, tapering to 1.5 cm at the ends. Notch the ends (refer to ‘a’ above) to take the bowstring about 1.25 cm from the ends. Remove the bark if you choose. When the bow has been whittled into shape rub it all over with oil or animal fat.



A rawhide string is best, cut toa width of 3 mm, but any string, cord or thin rope will suffice. The stems of old nettles provide tough fibres and these can be twisted together to make a satisfactory bowstring. If the bow has a lot of give a shorter string is likely to be needed, but when strung the string should only be under slight tension – the main tension is added when you pull it back to shoot.



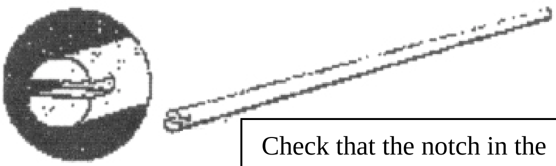
Secure the string to the bow with a round turn and two half hitches at the end.

If the wood is unseasoned release one end of the string whenever the bow is not in use to relax the tension or you may find the stave sets in shape.

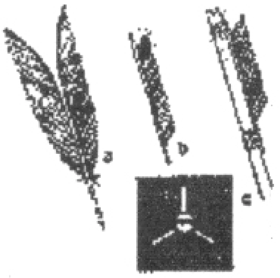
**A properly made bow will be more efficient and more accurate than just bending a pliable wand – but once it loses its string don’t waste time with it. Make another.**

### Arrow making

Any straight wood will do for arrows, but birch is one of the best. Make arrows about 60 cm long, and about 6 mm wide. Keep them straight (a piece of string tied between two points will give you a straight edge to check them against) and as smooth as possible. At one end make a notch 6 mm deep to fit the bow string.



Check that the notch in the end of each arrow is wide enough to fit over your bowstring

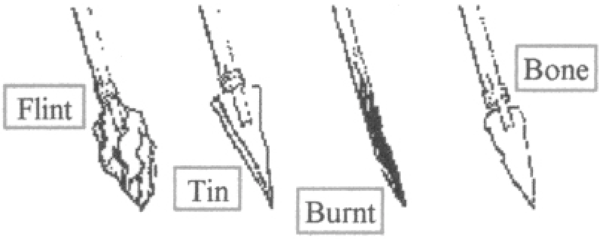


To increase accuracy arrows should be flighted. Feathers make the best flights, but other materials can be used: paper, light cloth or even leave trimmed to shape.

a. Split feathers, starting from the top, down the centre of quill.
b. Leave 20 mm of quill at each end of feather to tie to arrow.
c. Tie three flights equally spaced around the shaft.

## A2

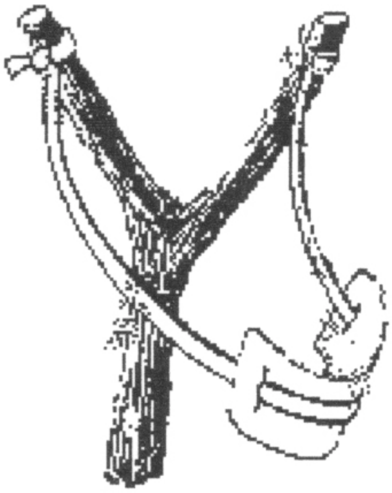
At the businees end of the arrow a sharp point is needed. The arrow itself can be sharpened and hardened in fire but a firm tip is better. Tin is excellent for flint can be fashioned really sharp arrowhead. With patience even bone can be made into a good tip. Split the end of the shaft, insert the arrow head and bind it tightly. Sinews are good for binding – apply wet, then dry hard securing the head firmly.



### Catapult

The schoolboy's weapon – but the romans used giant mechanical ones as siege weaponry. You need a strong forked twig preferable with some pliability – a hazel prong is excellent – and a piece of elastic material. A piece of inner tube from a car or bicycle type is ideal and stronger than the elastic in your cothing, although that could be used.

Make a puch for the centre the elastic and thread or sew it into position as for the sling, tie the ends to each side of your twig and use a stone as your missile.

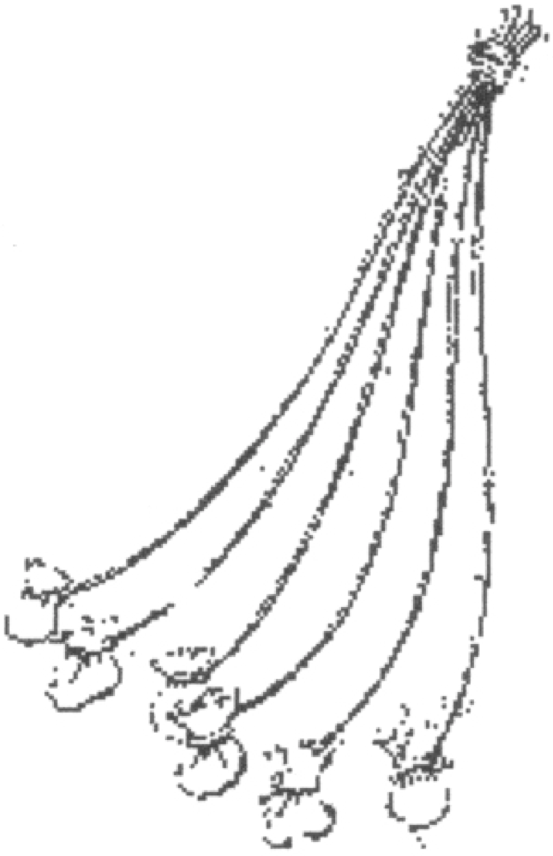


### Bola

A weapon that eslimos use against birds. Stones are wrapped in circle of material and 90 cm lengths of string knotted around each, the other ends of the string being firmly tied together. Held at the joined end, they are twirled around the head. When released they fly through the air covering a wide area.

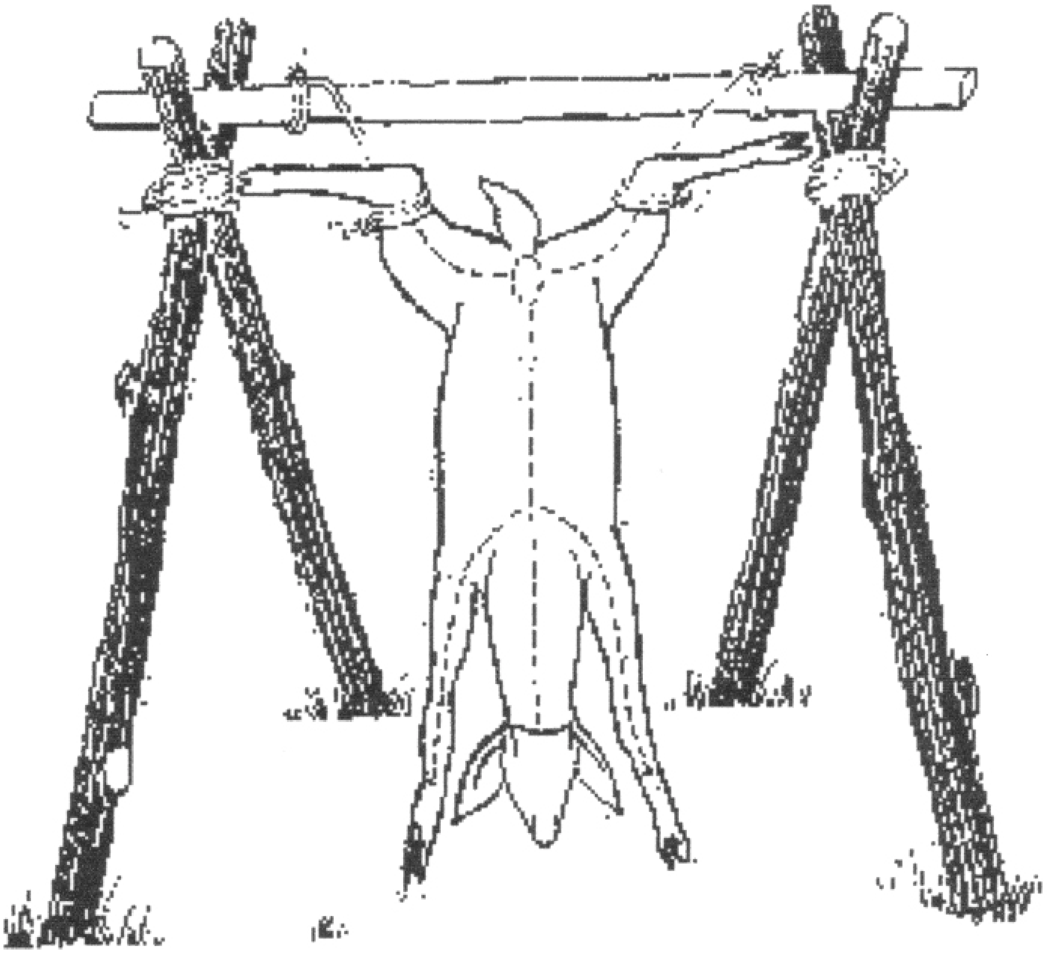
The Gauchos of South America use the same weapon and variation have been used in combat.

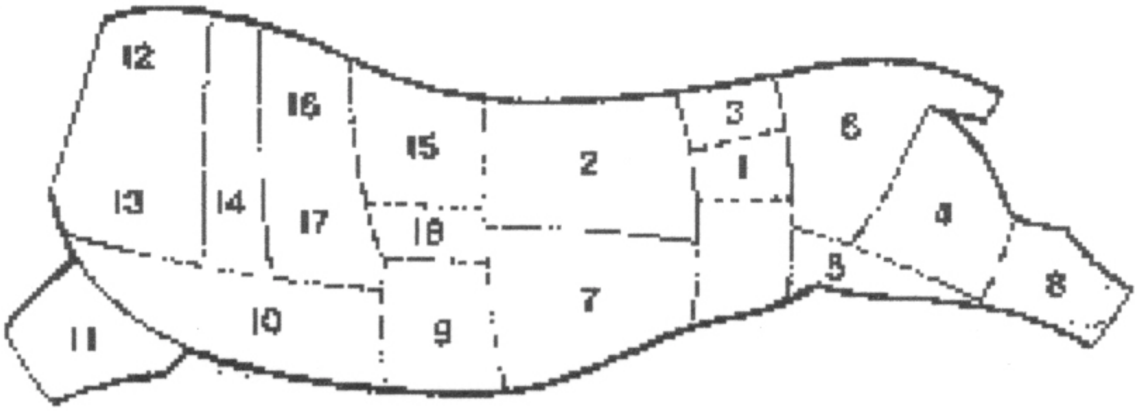
The bola wraps around a bird in flight or tangles around an animal's leg or neck bringing it to the ground and giving the hunter a chance to kill it.



**ANNEX B TO
SVA 5**

# PREPARATION TECHNIQUES





1. **Fillet or undercut.** The most tender meat – only 1 per cent is fillet. Idea for preserving.

2. **Sirloin.** Next most tender, Free strips can be cut for preserving.

3. **Rump.** Ideal for frying. Little cooking is needed. Can also be dried in strips.

4. **Topside.** Muscle from the top of the leg. Cook slowly, it tends to be tough. Cut into cubes for boiling.

5. **Top rump.** Muscle from front of thigh. As for topside.

6. **Silverside.** Muscle on outside of thighs. Good fo roasting.

7. **Hind Flank.** Belly, ideal for stews and casseroles.

8. **Leg.** Tough and sinewy, cut into cubes and stew.

9. **Flank.** Muscular extension of the belly. Ideal for stews. Usually tough so needs long simmering to make tender.

10. **Brisket.** Same as Flank.

11. **Shin Foreleg.** Best cubed for stews.

12. **Neck.**

13. **Clod.** Ideal for stews. Contains less tissue then leg. Cook slowly.

14. **Chuck and Blade.** Quite tender but usually cut up as stewing steak.

15&18.**Ribs.** Ideal for roasting but slowly.

# SURVIVAL ADVANCED

## SVA 6 - SURVIVAL ENVIRONMENTS

## 2 PERIODS

### Tropical Scrub

**6001.** Tropical scrub takes several different forms dependent on altitude, rainfall, proximity to the equator and whether coastal or inland. Each creates its own environment that poses different advantages and disadvantages for survivors.

**6002.** Tropical Rain Forests in Australia occur mainly in the sub-tropical north, within about 12% of latitude of the equator and in areas of high rainfall. Temperatures generally remain fairly constant throughout the year ranging from about 18%C in the drier mid-year season to around 32%C during the wetter monsoons. Vegetation in the rain forest consists of large trees, vines and ferns. In areas where the sunlight is able to penetrate the canopy of the larger trees, smaller deciduous bushes and trees form a thick scrubby undergrowth. Moving through rain forest scrub is often hot and hard work that, nearly always, has the added hindrance of swarms of biting and annoying insect life. The forest floor is made up of leaf mould and other debris which also houses dangers such as the death adder and other venomous snakes. A profile of a rainforest is at Figure 1.

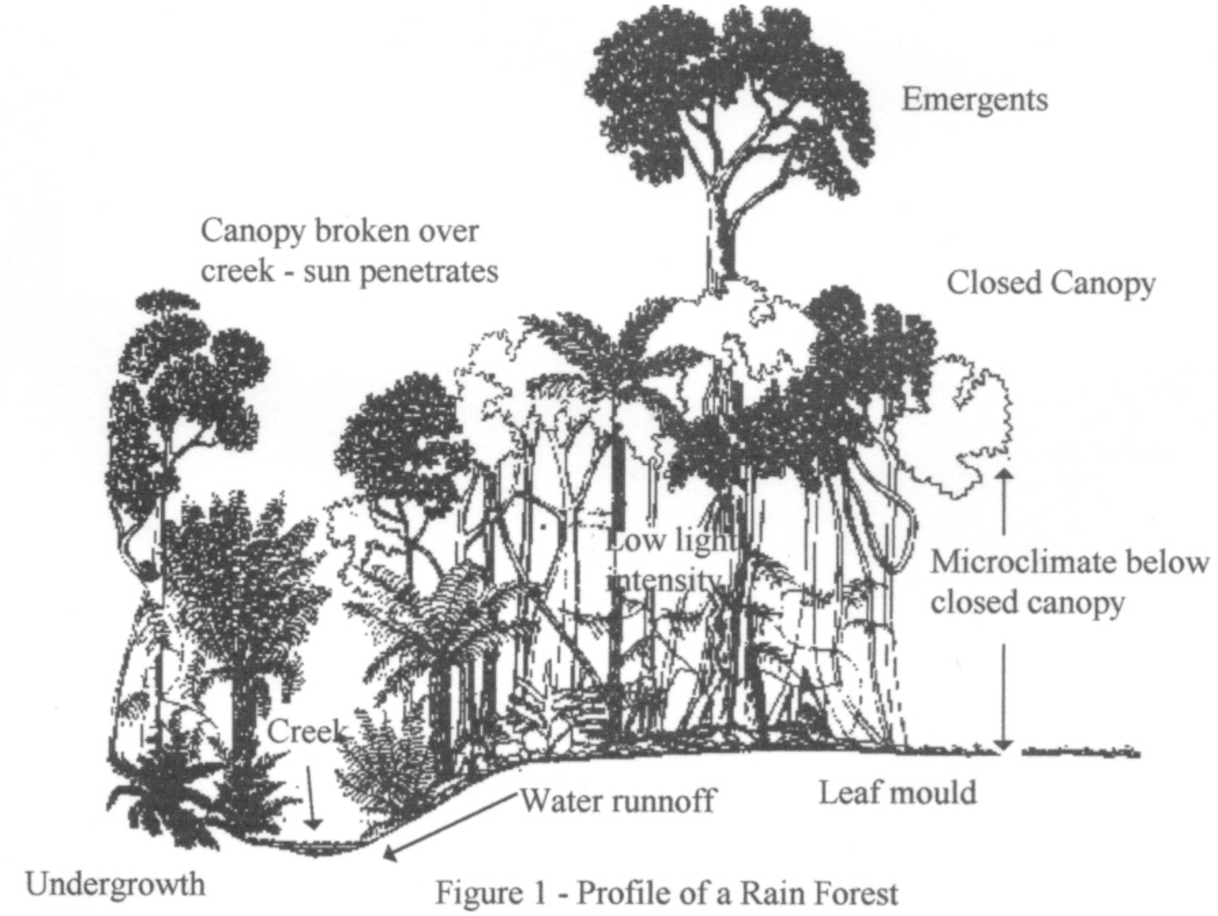


Figure 1 - Profile of a Rain Forest

## Tropical Scrub (cont)

**6003.** Coastal regions of the tropics present a very different type of vegetation consisting of thick scrub and mangroves. Movement through such areas is extremely slow and difficult, not only because of the mangrove roots and scrub, but also due to large tidal estuaries and mud flats that often intrude inland for several kilometres. In addition to the hazards mentioned in 6002 above, the tropical coast is the habitat of the estuarine or salt water crocodile. This reptile is the largest land carnivore in Australia, it is aggressive and extremely dangerous to humans. Food, such as fish, mud crabs, molluscs, mangrove worms and vegetation are plentiful and easy to obtain on the tropical coast, particularly at low tide.

**6004.** In general, movement in the tropics is hot, tiring work but survivors must resist the temptation to remove clothing. It is the only sure protection you have against insect bites, sunburn and other injuries from thorns and scrub. Because of the excessive heat and humidity, the intake of fluids must be carefully monitored to avoid heat stress. In coastal areas, foot wear is essential as mangrove mud often conceals poisonous marine animals like the stone fish. In order to avoid infections, rashes and other health problems, particular care needs to be taken with the treatment of cuts, no matter how minor and whenever possible, the body and clothing must be dried, either in the sun or by a fire. Remember that the hot, damp nature of the tropics promotes illness and disease far more quickly than in more temperate climates.

## Summary

**6005.** Protection -

a. Protect the body against scratches, insects and other animal bites by covering as much of the body as possible.

b. Prevent infections by treating all cuts, scratches, bites, etc, as soon as possible.

c. Check body regularly for parasites.

d. Construct shelter and bed. Clear ground around shelter to avoid pests such as leeches.

Travel -

a. It is better to stay with an aircraft/vehicle for at least five days.

b. If a decision is made to travel, travel along animal tracks and rivers.

c. Travel short distances and rest often to conserve energy.

d. Avoid swamps, particularly mangrove swamps and bamboo forests by travelling around them.

e. be careful not to become separated from other members of the group.

f. If crossing a river greater than 12m wide, use a raft.

## Cold Weather

**6006.** Most of Australia's extremely cold weather occurs in the mountainous alpine regions of Victoria and New South Wales and in central and southern Tasmania. The terrain is steep and precipitous and is often only accessible on foot. Vegetation in the highlands is generally low scrub and coarse grasses with occasional stands of eucalypts (snow gums), thick scrub in the gullies and creek lines and larger eucalypts on and below the snow line. The weather conditions are very unpredictable and severe storms, including blizzard conditions, have been known to occur even during the summer months with little or no warning.

**6007.** The main danger in extremely cold climates is from hypothermia and frostbite, both of which have been dealt with in Survival Advanced Lecture 3 (SVA - 3). In order to prevent these dangers the survivor needs to be alert to weather change indicators like sudden changes in wind direction and / or intensity, a noticeable sharp drop in temperature and sometimes the movements, or total lack of, birds and animals. The best protection against intense cold is adequate shelter, as shown in Survival Proficiency Lecture 2 (SVP - 2), or if you are caught in the open above the snow line, in a snow cave as illustrated in Figure 2. For personal protection in the open you need to have several layers of loose fitting clothing, gloves or mittens and headgear.

Shovel a hole into a snowbank and then hollow out a cavity just big enough to accommodate the group. Punch an airhole into the upper part of the cave and line the floor with vegetation or your rucksacks for insulation.

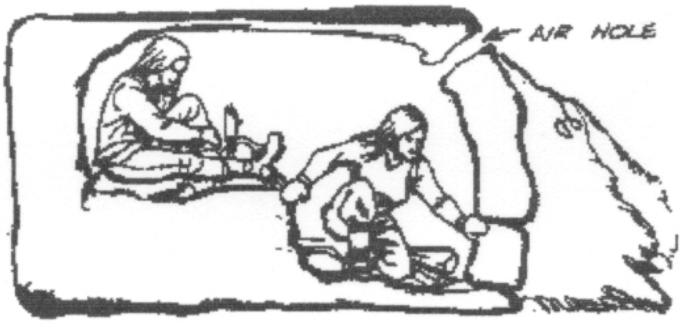


*Figure 2 - Snow Cave*

## Desert

**6008-** Vast tracts of inland Australia are comprised of arid desert country. Temperatures at some times of the year can range from -2%C at night to nearly 40%C during the day. The terrain is mostly flat rocky plains to undulating country broken up with some sand dunes, mountain ranges and usually dry, wide water ways. The vegetation consists mainly of spinifex grass, salt bush, mulga scrub and some larger eucalypts (mostly river red gums), along the water ways. Food is not easy to obtain in the desert but it is available and some types of edible vegetation have been mentioned in SVA - 4. Water supply is a more serious problem and some very effective methods are shown in SVP -2.

**6009.** Survival in the harsh desert environment depends on how you plan your approach. It is likely that the situation is the result of a vehicle or aircraft breakdown/ accident and if this is the case, then parts of the vehicle can be utilised to improve your chances. Doors and panels can be used for shade and shelter, mirrors and lights may be removed and used for signalling and tyres and fuel will make an effective beacon fire or smoke plume by day. Movement on foot must be restricted and in fact, should not be undertaken at all unless absolutely essential for survival. If movement is necessary, it should be in the evening and early morning, resting throughout the day.

## Desert (cont)

**6010.** When resting, either sit or lie down in full shade and do not move around. Under a tree will not provide enough shade, as sunlight will still penetrate through the foliage, therefore, you will need to construct a shelter, even from clothing if this is all that is available. Three items should be essential in your desert survival kit and they don't take up much room. These are, the space blanket for shelter and warmth, plastic bags to obtain water by the transpiration method and some squares of plastic sheet for the construction of solar stills.

## Sea and Coast

**6011.** Survival situations in the sea will be as a result of some sort of catastrophe. Either from someone falling over board, the sinking of a vessel or from a ditched aircraft. Without a survival craft of some type, such as a life raft, survival time in the water is governed by several factors. The temperature of the sea, the fitness of the swimmer, whether flotation is available or not, the number of people in the party, all have a bearing on the outcome. The two maps at Figure 3 below show an estimation of survival expectancy time for an exposed person in Australian waters for both summer and winter months.

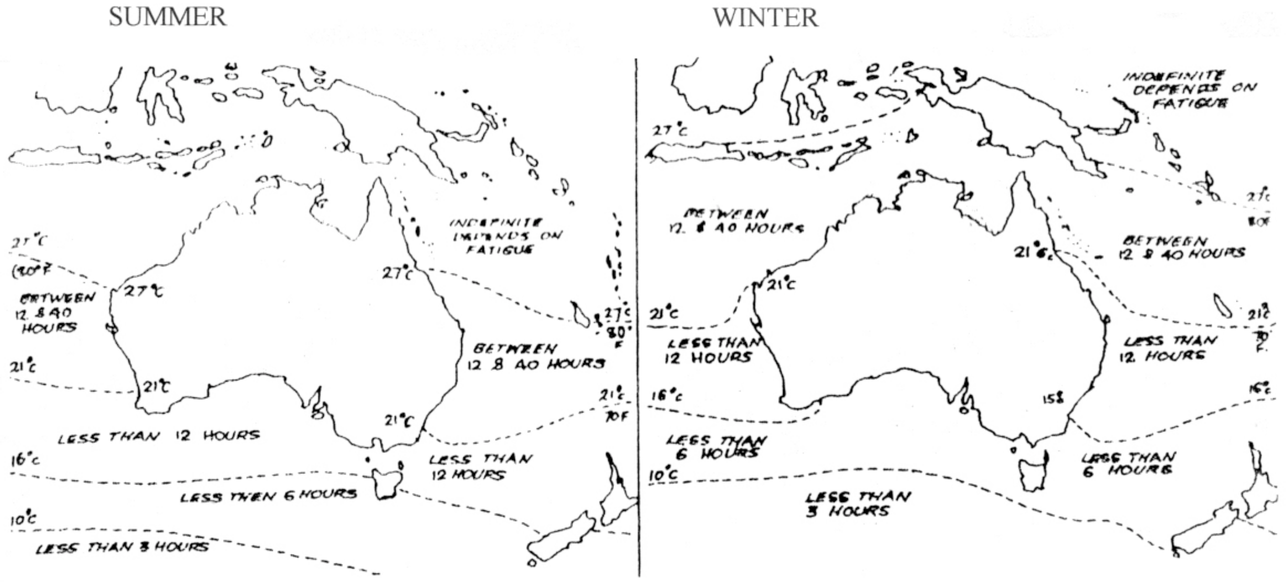


*Figure 3 - Estimated Survival Time in Australian Sea*

**6012.** In very cold water (10%C or less) the unprotected body will lose heat quite rapidly, mainly from the torso, and the victim will suffer hypothermia. The survivor must try to delay this cooling process for as long as possible so as to increase the chance of rescue. Several measures may be used to reduce cooling and these are described below and illustrated at Figure 4.

a. Unless you are within one kilometre from the shore or a rescue craft, do not swim. Swimming will increase blood circulation to the extremities of the body and skin that will, in turn, cause the blood to cool more rapidly. To stay afloat, either tread water by making small circular movements with the arms and legs, or use the 'drownproofing' method which means floating with the lungs full of air and lifting the head to breathe about every 10 - 20 seconds.

## Sea and Coast (cont)

b. If you are wearing a life jacket you will be able to considerably reduce heat loss from the vital areas by using the Heat Escape Lessening Posture (H.E.L.P.) technique. It is done by holding the arms tightly against the sides drawing the life jacket into the chest and raising the thighs to block off the groin region. If there are two or more survivors it is even better to 'huddle', with the exposed sides of each others chest pressed together.

Treading Water

Drownproofing

Huddle Technique

H.E.L.P.

*Figure 4 - Heat Loss Reduction Methods*

**6013.** The table at Figure 5 is an estimate of how the different methods will effect your chances of rescue in terms of survival time in very cold water.

| SITUATION | PREDICTED SURVIVAL TIME (HOURS) |
|---|---|
| **WITHOUT FLOATATION** | |
| Drownproofing | 1.5 |
| Treading Water | 2.0 |
| **WITH FLOATATION** | |
| Swimming | 2.0 |
| Holding Still | 2.7 |
| H.E.L.P. | 4.0 |
| Huddle | 4.0 |

*Figure 5 - Cold Water Survival Table*

## Survival Craft

**6014.** Life rafts, life boats and inflatable dinghies are purpose built and although their characteristics differ, they are all fitted with aids for survival at sea. As soon as possible after boarding the raft or boat, check all of these items and make sure that they are securely stowed and that items like flares, dye markers and other signalling devices are ready for immediate use. Post a lookout and make up a roster so that a properly organised 24 hour watch can be kept to look for searching aircraft or ships. Food and water must be rationed and remember that survival food is usually highly concentrated and requires water to break it down, so if there is a water shortage, go sparingly on the eating and as soon as you are able, start fishing.

**6015.** All survival craft are rated for a maximum number of occupants and if the limit is exceeded, it may upset the craft to the detriment of all survivors. It may be necessary therefore, to avoid overloading by some members of the group remaining in the water, secured to the side of the craft, alternating with others for a position inside at regular intervals. Young children, the aged and people who are infirm or injured, should remain on board and not be included among those who are required to go into the water; this is for the strong and fit only. The nature of a life raft is such that it sits on the surface of the water (rather than in it like a deeper hulled boat) and may be subject to capsize. The technique for righting a capsized raft is at Figure 6.

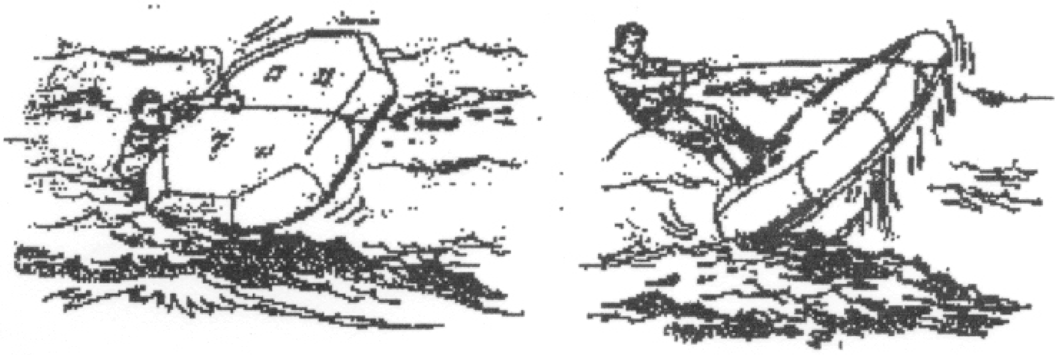


*Figure 6 - Righting a Capsized Life Raft*

## Navigating The Life Raft

**6016.** Again, because of its characteristics, a raft if far more difficult to navigate or steer that a more conventional boat with a displacement hull. Rafts are far more susceptible to the effects of wind, tide and currents and you may find that you are being pushed in the wrong direction. If the raft is fitted with a sea anchor, (this looks like a small wind sock or drogue) it should be streamed from the front of the raft to slow down movement through the sea. If it does not have this piece of gear, you can improvise one as shown in Figure 7. Provided the weather conditions are favourable, another method, which will also give the raft a certain amount of steerage way, is to rig a sail and rudder as shown in Figure 8.

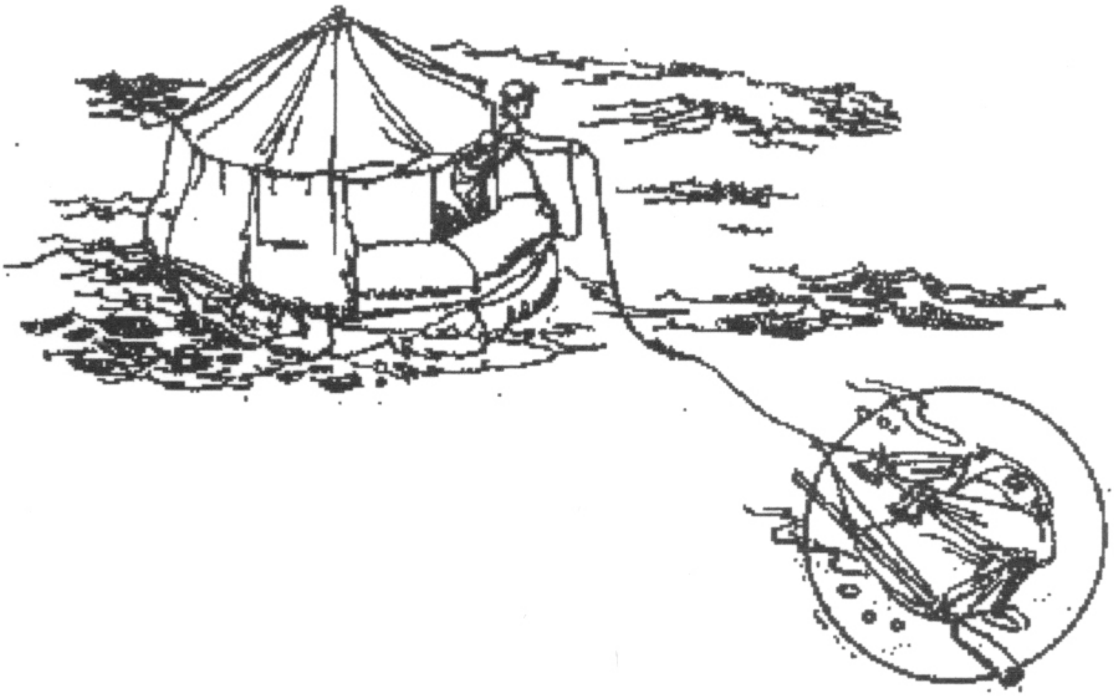


*Figure 7 - Improvised Sea Anchor*

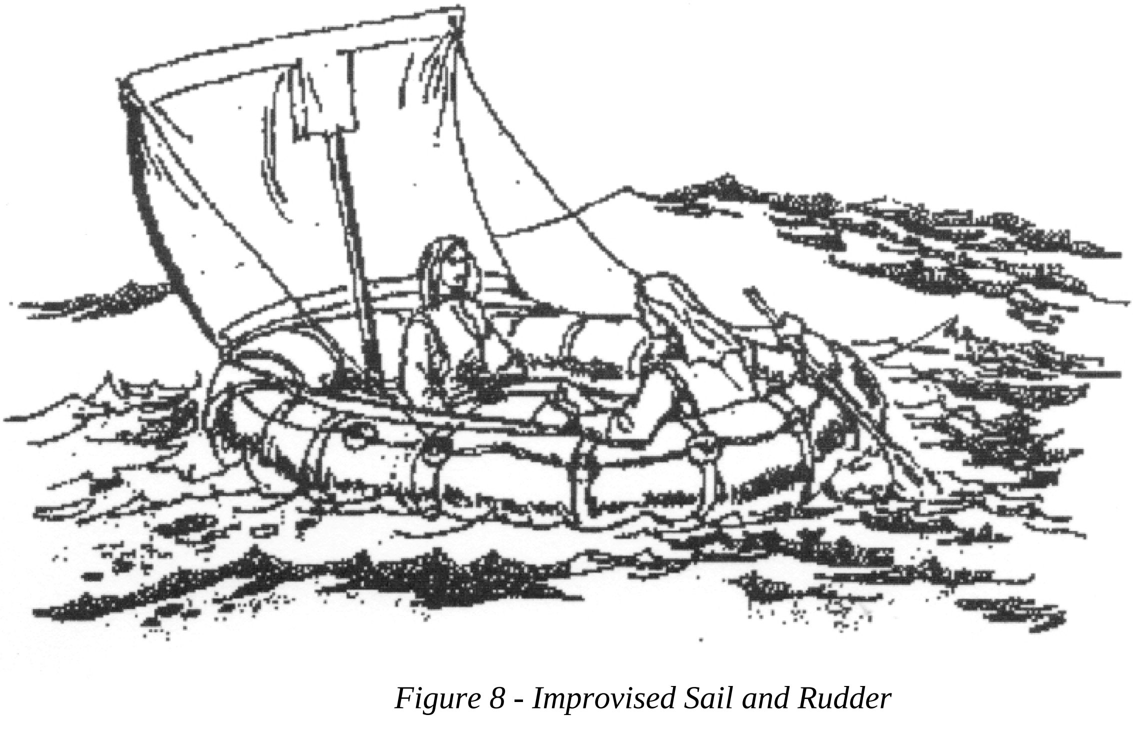


*Figure 8 - Improvised Sail and Rudder*

## Making A Landfall

**6017.** Cases exist where people have survived their ordeal at sea, only to be maimed or even killed while being washed ashore. Some of the hazards close inshore may be as follows:

a. Strong tidal flows on the ebb tide or the outlets of rivers may sweep you further out to sea. As you get near the coast, watch for any floating objects (timber, coconuts, etc.) which might give an indication of the direction of the currents.

## Making A Landfall (cont)

b. Look for lines of breaking waves out from the shore. This will mark the position of a reef or sand bar that has the potential to damage or wreck your craft. Pick a flat spot between the breakers and aim for that, it will probably indicate a passage between the rocks or coral.

c. If you are swimming, large beds of kelp and other sea weeds will also prove hazardous if you get entangled. You will notice the weed on the surface, washing back and forth with the wave action so give it a wide berth.

## Ashore

**6018.** Once the whole group is safely ashore, every effort must be made to contact the locals and seek assistance from them. If however, the place is uninhabited or isolated you will need to go into coastal survival mode. All of the survival necessities concerning water and food procurement and shelter apply and these can be referred to in previous SVP and SVA Cadet Notes. Some other essential actions after landing however, are listed below, (not necessarily in order of priority):

a. Beach and secure the survival craft, it may be useful as a temporary shelter, a fishing craft or as a further means of transport.

b. Dry out and stow away any equipment from the craft and make a store for any of the remaining food.

c. Provide shelter and care for any weak or injured members of the party and allow people to rest and recuperate after their time at sea.

d. Organise a 24 hour lookout roster to watch for would be rescue craft and construct a beacon fire (with standing orders for lighting it) and / or other signalling devices (flares from the survival craft, mirrors etc.). The beacon and lookout need to be on a prominent high point of land.

e. Explore the area looking for and potential hazards, water supply, food sources and any suitable natural shelter, like caves and so on. Remember that you have the resources of both land and sea as a food supply.

f. Find a more suitable site and construct your permanent accommodation, including sleeping, eating, ablution and food preparation areas.

g. Prepare to improve your chances of rescue. You may discover that you might have to undertake another sea voyage in order to reach civilisation. This could mean the preserving of food and making sure the craft is suitably prepared.

h. Establish a hierarchy,(who is in charge of what duties, etc.). SVP 1 gives some guide lines on how to do this.

## Natural Disasters

**6019.** Survival in natural disasters will vary with the nature, location and local conditions at the time. Several specialised organisations in all States and Territories of Australia, have the responsibility for the mitigation of various natural disasters. The best organisation to start with to gain information is probably the State/ Territory Emergency Service, who will direct you to the appropriate authority if the direct responsibility isn't theirs. The contact telephone numbers for these are shown at Figure 9. Some general actions however, for survival in flood, fire and storms are detailed below.

| | |
|---|---|
| Western Australia State Emergency Service | (09) 277 5333 |
| South Australia State Emergency Service | (08) 211 8700 |
| Victoria State Emergency Service | (03) 267 4688 |
| Tasmania State Emergency Service | (002) 30 7000 |
| New South Wales State Emergency Service | (02) 9269 8833 |
| Australian Capital Territory Emergency Service | (06) 247 9222 |
| Queensland State Emergency Service | (07) 224 8680 |
| Northern Territory Emergency Service | (089) 22 3344 |
| Norfolk Island Fire and Rescue Service | 011-672-3-2555 |

*Figure 9 - Australian Emergency Services*

## Flood

**6020.** Floods may be caused by several circumstances, heavy rainfall, coastal tide surge in conjunction with a cyclone, abnormal damming of a river are just a few. The onset of most flooding is gradual and the best protection is to monitor the situation and, making sure that you leave plenty of time, move yourself and some essential survival equipment to higher ground. You will need to work out well in advance which ground in the area will not become inundated.

**6021.** Flash flooding is much more a threat to safety. This is where the water from a heavy downpour upstream, which has become dammed up, is suddenly released and rushes down an otherwise dry creek or river bed. The wall of water that results from this has tonnes of pressure behind it and will carry away anything in its path. The survival rule here is mainly one of prevention. Never camp or halt in a dry creek bed, particularly if you know that there has been heavy rain in the higher feeder areas.

## Bushfire

**6022.** By the layout of the terrain. the vegetation and the climatic circumstances, bushfires will vary in their nature from one set of conditions to the next. For example, the flames from a grass fire may pass you by in about 30 seconds, making your survival chances very good, whereas in thick scrub or heavy bushland it might take 3 to 5 minutes to pass. The primary killer in fires of any kind is radiated heat, it will cause severe burning and heat stroke, the main cause of bushfire deaths. Radiated heat is like light, it travels in a straight line and will not penetrate solid material. The rules for survival in bushfires are therefore related to the situation but the following advice for survival are the type adopted by forestry personnel and firefighters:

a. Conserve your mental and physical energy.

b. Do not run uphill or away from the fire unless you are sure that there is a safe refuge in that direction.

## Bushfire (cont)

c. Move across the slope out of the path of the fire front and work your way downhill towards the back of the fire.

d. Do not try to run through the flames, unless they are less than 2 metres high and 3 metres deep and you can identify a definite clear path on the other side.

e. If you cannot get out of the fire's path you must protect yourself against radiated heat. Make a heat shield from anything available, rocks, logs, earth, etc. or get into a depression or drain channel in the ground and cover yourself. Do not panic and break cover when the fire approaches you.

f. Protection can be gained from waterholes, billabongs, creeks and other ground water sources but never in elevated water storage tanks. Elevated tanks will heat up quite rapidly and the human body, when immersed in lukewarm water cannot sweat and at 47%C, a state of collapse is reached in about 3 minutes.

g. Back burn if possible; this is probably the best method to ensure your survival. Turn away from the fire and start one of your own on a wide a front as possible. The wind will blow your fire in the same direction as the main fire and you can simply stem onto the burnt ground as the fire approaches, see Figure 10.

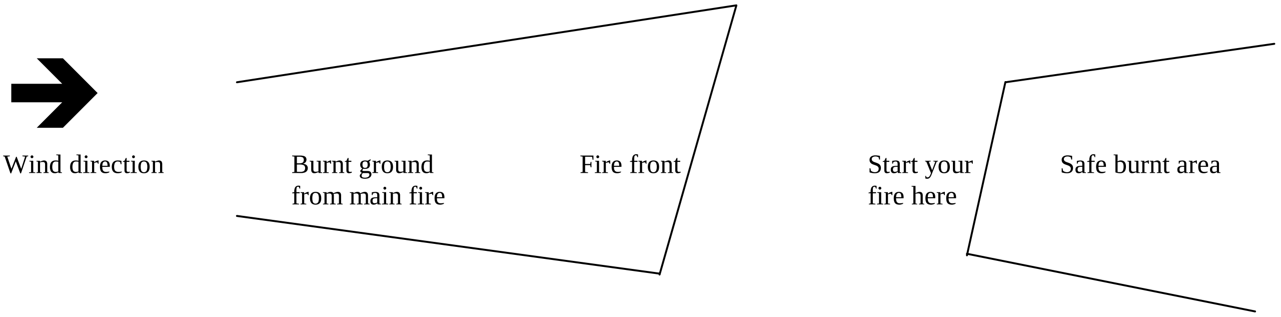


*Figure 10 - Backburning for Survival*

## Storm and Tempest

**6023.** Hazards from severe storms include torrential rain, very high winds, a lowering of the temperature and lightning strike. The intensity and probability of these hazards vary with location and the State / Territory Emergency Service (S / TES) will be able to assist you with the necessary information for the area where you are planning to operate. Some general points for survival, if caught unawares, are detailed below.

## Lightning

**6024.** Lightning strikes are particularly prone to high ground, rocky outcrops, tall trees and any prominent features on the landscape, so the general rule is don't take shelter in any of those locations. If caught in the open without any protection, head for the low ground and lie flat. Water is a conductor, so try to protect yourself by remaining dry and sitting or lying on something dry, such as your pack, which may also have an insulating effect. The procedure is to sit on the object, lift your feet clear of the ground, hug your knees into your chest and lower your head, (like rolling up into a ball while sitting down).

## High Speed Winds

**6025.** High winds can occur anywhere on the continent or at sea and we are all familiar with the types of local storms which tear off the odd suburban roof, sink boats in the marina and cause thousands of dollars worth of local damage every year. These winds, (which can gust up to 120 kph. at times), are usually associated with squalls and other severe rain storms where the danger isn't so much the wind itself, but from being struck by wind bourn material. In the bush, protect yourself by sheltering amongst large rocks or anything that can shield you from flying debris, preferably something with overhead protection as well.

**6026.** Cyclones are large revolving storms that occur around the tropical and sub tropical regions from Western Australia, through the north, to Queensland and sometimes to parts of New South Wales. They consist of extremely powerful winds (sometimes in excess of 300 kph), which rotate in a clock wise direction about an eye of very low pressure in which the wind is negligible (the calm eye). Cyclones are destructive and in many cases have wiped out entire cities and communities, causing hundreds of human casualties and millions of dollars damage. The only method of protection is to either move inland as far and as fast as possible (150 km or more is necessary), because cyclones deteriorate over land, or to seek shelter. Shelter must be very strong, and if out doors, a cave will provide the best protection, failing that, somewhere below ground. It is possible that the 'calm eye' may pass directly over you, so do not be fooled into thinking that the danger is passed. Remember also, that this is a rotating storm and the wind will come from the opposite direction after the eye has passed. Cyclones happen during the monsoon season and their formation and movements are forecasted by the Bureau of Meteorology. Cyclone warning systems apply in all affected areas of Australia and to find out about these, contact the local S / TES.

**6027.** Tornados are also rotating wind storms but they are much smaller in diameter and far more fierce than a cyclone, often with winds in excess of 600 kph. Damage from these storms means total destruction along the highly localised path of the tornado. For example, at one town in Western Australia, part of one side of the main street was completely wiped out while the remainder was left untouched. For protection you must get out of the path of the tornado by moving as fast as possible at right angles to its apparent track. A tornado has the power to draw quite large objects into it, carrying them for several kilometres, therefore, if you need to take shelter it must be in a cave, reinforced building, etc. or below ground. If caught in the open, lay flat (in a ditch or depression if possible) and cover your head with your arms. Tornados can be detected by the dust and debris they carry and by their loud noise, like the whirring of an engine.

# SURVIVAL ADVANCED

## SVA 7 - SEARCH AND RESCUE PROCEDURES

## 2 PERIODS

### FIELD SEARCH PLANNING PROCEDURES

### Introduction

**7001.** Regardless of the type of search to be conducted, standard principles exist which must be applied in order to achieve maximum results. Past experiences have proven these principles to be both sound and essential in achieving the aim of any search operation - *to locate and save the life of a missing person.*

### Control

**7002.** In all States and Territories of Australia, the police are responsible for the conduct of land search operations. The responsibility for organising and controlling search parties is usually vested in the Officer In Charge (OIC) of the particular police region concerned.

**7003.** A most important point regarding control is that everyone taking part in a search operation must be made fully aware of just who is controlling that operation. Case studies show time and again, that where searches have been unsuccessful, it was due to either lack of control or that there was some doubt amongst the various organisations taking part as to who was controlling the operation.

### Information

**7004.** Information is an essential requirement in any search. More details will be given later in this paper, but broadly, information can be classified as follows:

a. Pre-search information; as much information as possible must be obtained before initiating the operation and should include;

   (i) relevant details concerning the missing person,

   (ii) weather conditions;

      (a) at the time the person was reported missing,

      (b) present weather in the search area, and

      (c) the weather forecast for the estimated duration of the search.

   (iii) information regarding the area to be searched, and

## Information (cont)

(iv) resources available (human and material).

b. Search operational information; based on the pre-search information, a preliminary assessment of the search task can be made. Once the search operation has commenced, this needs to be up dated with reliable and accurate information passed back by search parties in the field.

## Communications

**7005.** An efficient communications system is essential for control and for the passage of information. If possible, radio communication should be used, however, depending on the type of set, their capability may be affected by terrain and poor weather conditions. Therefore, alternative means of communication should always be provided, for example, runners / riders or field telephones.

## Mobility

**7006.** Mobility for reconnaissance parties, such as vehicles, aircraft, motorbikes, etc. is an essential element in search operations.

## Flexibility

**7007.** The search controller's plan must be flexible. As new information is received it may be necessary to concentrate on a different part of the area or even re-locate to a new search area altogether. Not only the overall plan, but search party members must fully understand the difficulties and the demanding nature of search operations and the need for flexibility.

## Trained and Disciplined Personnel

**7008.** Ideally, the best people to use in search operations are those who have been trained in bushcraft, search techniques and rescue skills. Unfortunately, the number of trained people available at the time would be limited and it will therefore be necessary to supplement the search parties with voluntary untrained personnel. In this case, the following should be noted;

a. Poorly led search parties must not be sent into the field. The number of search parties should be limited to the number of competent leaders.

b. Physical fitness of all members should be assessed and tasks allocated accordingly. The hardest tasks to the fittest, less arduous to the average person and base duty and easy physical tasks to those considered unfit.

c. Members of search parties must be prepared to accept orders and advice from their leader. Remember that the aim of a search is to save life and this will only be achieved if all team members cooperate and work well together.

## The Information Process

**7009.** The process of handling search information can be divided into four stages:

a. Collection; Information does not always come readily to, hand and must therefore be sought out, often from the most unlikely sources. It may be necessary to establish special teams to deal with this, but whatever the means, as much information as possible should be obtained in the shortest time.

b. Collation ; As information is assembled, it needs to be sorted out into various categories relevant to the situation. Wherever possible, the information should be displayed in such a way that it is readily available to the Search Controller and others. Having to leaf through piles of forms or maps will make the task of evaluation and decision making, much more difficult and time consuming.

c. Evaluation; As information comes in, it will be noted that some will be either relevant, reliable and recent and some will be irrelevant, unreliable and out of date. It will be necessary for the Controller and those in command positions to evaluate such information on its merits and make decisions accordingly.

d. Dissemination; Information is useless if it isn't used properly. It must be passed on, to search parties, higher command / authority, the relatives of the victim and (if necessary) to the media. Such information must be both accurate and relevant if confidence in the Search Controller and the operation in general is to be maintained.

## Using the Information

**7010.** The utilisation of search information may be separated into four phases which are described below. The phases b, c, and d, operate as a cycle which will continue until the end of the search. As search parties return for de-briefing, their information will be evaluated and built into the briefing for the next parties being sent out.

a. Pre-search (collection, collation and evaluation) ; in the period between the raising of an alarm regarding a missing person and the actual mounting of an organised search, as much relevant information as possible must be acquired and evaluated. The result may be either to reinforce the need for urgency due to the victims state of health or the weather conditions, or it might be found that the alarm is premature and the need may be deferred or even cancelled.

b. Briefing (dissemination) ; when the decision has been made to mount a search, and the search parties are ready, the Search Controller must brief each party leader thoroughly. All details regarding the victim, the area to be covered, search patterns to be used, any special instructions, command and communications must all be clearly and fully understood. Any vital points missed in this phase may lead to an unsuccessful conclusion to the entire operation.

c. Search operations (collection and evaluation); during the operation, all members of a search party must consistently seek more information. This may come from clues or the interpretation of topographical features. All such information must be evaluated and passed on to other members and back to search headquarters.

## Using the Information (cont)

d. Debriefing (collection, collation, evaluation and dissemination) ; As search parties return to search operation centres, all members must be debriefed. Care needs to be taken that all relevant information is gathered and evaluated in the light of the overall picture as it develops. It is then passed on to those parties still in the field or about to set out.

## Type of Information

**7011.** Information required, particularly in the pre-search phase, will fall broadly into the following categories :

a. Victim; As much as possible must be known about the missing person, it should include personal details, physical features, state of health and mental attitude, behaviour patterns, method of transport and time of going missing. This information may determine the policy for the search. For example, if the person has a history of 'going missing' then the policy might be one of wait and see what happens, or conversely, if the person is, say, a diabetic, then there will probably be some urgency. For example only, a standard Victim Information Sheet is included at Annex A.

b. Weather; Current and forecasted weather conditions will be of vital importance in that it will have an effect on the victim's time-frame for survival and also on the conduct of the operation. Full details should be obtained and these related to local knowledge.

c. Area of search; Successful search operations will depend to a large extent on accurate prior knowledge of the area to be covered. Before search patterns can be decided, it will be necessary to know the topography, any potential problems or hazards, type of ground cover and locations of check points.

d. Resources; The pattern of operations will be confined and dictated by the resources available to the search controller. They will fall naturally into two categories;

  (i) Human; This will include details such as numbers, the range of experience and local knowledge and expertise.

  (ii) Equipment; Includes the availability of vehicles, aircraft, radios, maps, protective clothing, dogs, horses and any specialist gear, etc.

## Where to Obtain Information

**7012.** Having laid down the types of information required, there are two factors to consider; where may such information be found and how much is enough. Sources will be related to the type of information required;

a. Victim ; family, friends, school, employer, family doctor, last known contacts.

b. Weather; Bureau of Meteorology, local knowledge, local records, experience and training.

## Where to Obtain Information (cont)

c. Area; Topographic survey maps, local maps, sketches, local knowledge, air photographs, reconnaissance.

d. Resources; Police, Emergency Services, Scouts, AIRTC/ Army Cadets and other youth organisations, bush walking and riding clubs, Defence Force, Local Council, private aviation companies.

## Time Frame For Survival (TFFS)

**7013.** The TFFS is an assessment of the maximum and minimum time the lost victim is expected to live. As it is an indicator of the time in which the person must be found (alive), it has direct bearing on the urgency or otherwise, for the search to commence. In order to make an accurate assessment, the following factors need to be considered:

a. Hypothermia; Figure 1 shows the range of days for fatal exposure or hypothermia. The graph depicts the limits the limits of victim survivability in days for a given temperature. The information is based on a 25 year old male wearing the equivalent of a business suit.

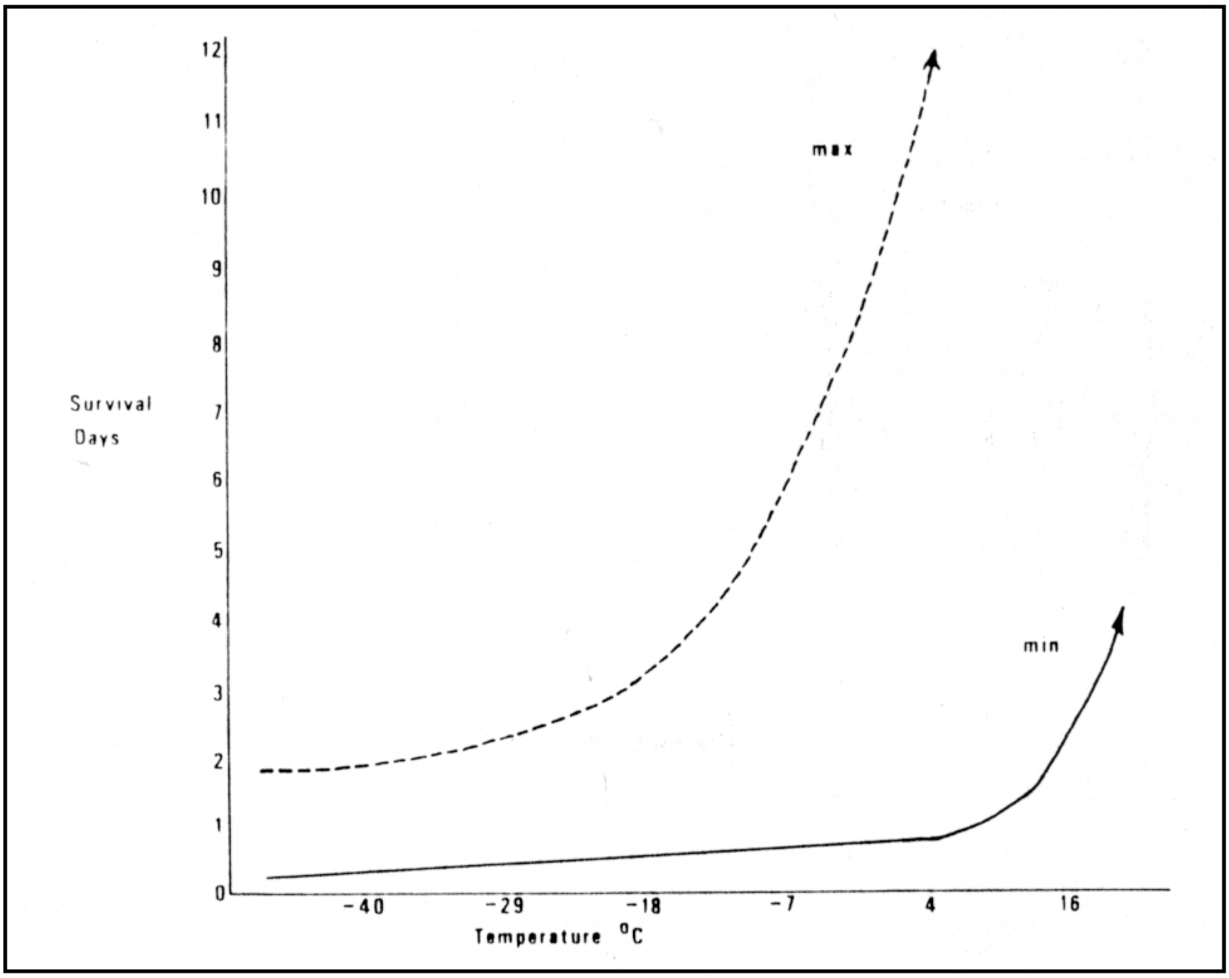


*Figure 1 - Hypothermia Survival Time*

## Time Frame For Survival (TFFS) (cont)

b. Dehydration; Figure 2 illustrates the water requirement for survival when the victim is both stationary and mobile.

| APPROXIMATE SURVIVAL DAYS | | | | |
|---|---|---|---|---|
| Conditions and Max shape temp | Total water available per person | Resting in the shade at all times | Travelling at night resting in shade by day | Approx distance (in Km) that can be covered when travelling |
| Hot<br>37°C and above | No water<br>1 litre<br>2 litre<br>4 litre<br>10 litre | 2-5.5<br>2-6<br>2.6.5<br>2.5-7.5<br>3.5-11.5 | 1-3<br>2-3.5<br>2-3.5<br>2.5-4.5<br>3.5-6.5 | 30<br>30<br>40<br>50<br>65-80 |
| Warm<br>26°C to 37°C | No water<br>1 litre<br>2 litre<br>4 litre<br>10 litre | 5.5-9.5<br>6-11<br>6.5-12<br>7.5-14<br>11.5-23 | 3-7.5<br>3.5-8<br>3.5-8.5<br>4.5-10<br>6.5-14 | 30.5-65<br>30-80<br>40-90<br>50-105<br>80-145 |
| Cool<br>26°C and below | No water<br>1 litre<br>2 litre<br>4 litre<br>10 litre | 9.5-11<br>11-12<br>12-13<br>14-16<br>23-25 | 7.5-8.5<br>8-9<br>8.5-10<br>10.5-12<br>14-17 | 70-105<br>80-130<br>90-175<br>105-265<br>145-290 |

Water Requirements

**7014.** An algorithmic diagram showing a logical method to calculate the Victim's TFFS is shown at Annex B.

## Period of Victim Mobility

**7015.** The period of mobility since lost is used to assess the maximum distance a victim could travel which may dictate the size of the overall search area. This assessment can be made from the graphs in Figures 1 and 2, or by assuming a mobility period of two thirds of the victim's TFFS. For example, if the TFFS is calculated to be 48 hours without water, then the period of mobility will be approximately 32 hours.

## Search Area

**7016.** The maximum search area to be covered can be calculated by converting the period of mobility (hours) to a distance in kilometres as if the victim had travelled in a straight line from the point of becoming lost. This calculation is not as simple as it seems and a number of factors need to be considered.

a. The victim's age and sex.

## Search Area (cont)

b. The weather conditions.

c. The terrain over the victim will travel.

d. The victim's experience, training and general condition.

**7017.** To determine the maximum search area, the Controller will plot the distance over 360% from the point where the victim became lost. This area can then be reduced by a detailed study of the terrain and other obstacles. For example, a large gorge or river may restrict the victim's movement in a given direction.

## Search Area Time Scale

**7018.** The total search area time scale may be plotted to give a clear picture of the situation and the time by which the victim must be found before death occurs. An example of a search area time scale is shown at Annex C.

## FIELD SEARCH ORGANISATION

**7019.** A hastily mounted and poorly organised operation may not only fail to find the missing person, but may also put the searchers at risk. Proper organisation will achieve effective control and it may be necessary to set up some or all of the facilities listed below. The scale will be determined by the factors previously mentioned in this paper. A complete organisational chart is shown at Annex D.

**7020.** Planning Factors - when planning a field search, several factors must be considered before the Search Team (ST) is dispatched. These include:

a. search equipment,
b. equipment required,
c. transportation requirements,
d. food, water and other supply support requirements,
e. need for establishing a base camp,
f. number of search personnel available,
g. size and shape of each search area,
h. time and number of personnel required to search the complete area and each separate search area,
i. direction in which search tracks should run,
j. track spacing to use,
k. communication requirements - ground to base, ground to air, frequencies,
l. entrance and exits points to & from each search area 9 if possible the two points should be in the same immediate area, and
m. employing the searchers during the period required to proceed to each search area.

## Forward Command Post (FCP)

**7021.** This should be established by the Field Search Controller in or near the search area of operations, as it is from here that search parties will be tasked and controlled. Key Factors in the choice of location are accessibility and communications.

## Forward Command Post (FCP) (cont)

**7022.** Normally, a FCP can effectively control up to six search parties in the field. When more parties have to be used or there are difficulties with communications or terrain, it may be necessary to establish a subordinate operations centre to maintain effective control.

## Support Base

**7023.** The support base is not part of, but is an adjunct to the FCP, to ensure that operations in the field receive adequate administrative and logistic support. It should be located in an area where all resources can be marshalled, organised and brought to a state of readiness as required by the Field Search Controller. It should not be sited in the actual search area because there will, of necessity, be a large movement of personnel, vehicles and equipment, but should in close proximity to it.

## Main Search Operations Centre (MSOC)

**7024.** The MSOC is established by the Search Controller who is responsible for the overall operation. It will normally be located in a Police Station or District Headquarters, which ever is appropriate. The role of this centre is to provide operational back up and coordination to the field operations. It has already been shown that a great deal of investigation needs to be done before a decision is made to mount a search. In these preliminary stages, there is a very real danger that rumours and false information may cause an over reaction in which organisations and individuals, with the best will in the world, may rush off into the search area and by doing so, greatly reduce the chance of success.

## Assembly Area

**7025.** If the distance between the search area and the MSOC is considerable, the Search Controller may decide to establish an Assembly Area nearby. This will ensure that resources moving forward to the Support Base in the field are properly grouped and equipped.

## Operational Requirements, Staff and Duties

**7026.** The Field Search Operations Centre should, if possible be located in an existing building, so as to reduce the need for portable communications and power, etc. The duties of the Field Search Controller are;

a. Command the FCP

b. Decide where to search, technique and search patters to be used.

c. The number of search parties and what their make up and equipment will be.

d. The issuing of orders and debriefing of search parties.

e. The deployment and safety of all field personnel.

f. Situation reports to the Search Controller and keeping the Support Base informed of field requirements.

**7027.** The Support Base should be sited in reasonable proximity to the FCP. It should be large enough to contain stores, welfare facilities (for the search and HQ personnel), working space and a vehicle park. It is also the entry point to the field search area but must not be treated as the rallying place for all who want to help etc. It has an entirely operational role and should hold only enough personnel and equipment as required by the Field Search Controller. The Officer In Charge (OIC) is responsible for;

a. Maintaining close contact with the FCP and MSOC at all times.

b. Controlling movement in and out of the search area

c. Recording the names and addresses of all personnel taking part in the operation, including the details and composition of all search parties.

d. Recording the issue and return of all equipment.

e. Welfare including the feeding, clothing and rest areas for all personnel in the field.

f. First aid post facilities.

g. Despatching fully equipped search parties and other resources to the Field Search Controller as required.

**7028.** The Main Search Operations Centre is usually located in an existing Police Station, the OIC of which would normally become the Search Controller who has the following responsibilities;

a. Overall control of the operation.

b. Deployment of FCP and Support Base.

c. Alerting and liaising with all organisations that may be required to assist.

d. Planning to obtain the resources that may be required in the search.

e. Produce the communications plan.

f. Deploy personnel and equipment as requested by the Field Search Controller.

g. Public relations and media liaison.

h. Setting up the Assembly Area if one is necessary.

**7029.** Search Personnel - the Search team is generally made up of the following;

a. Team Leader - selected based on knowledge and experience.

b. Guide - if operating in unfamiliar territory.

**Operational Requirements, Staff and Duties (cont)**

c. Flankers - two flankers equipped with radios, whistles, compasses, maps of the area, and either a machete or hand axe.

d. Linesmen - enough linesmen equipped with whistles to adequately cover the assigned search area.

## TYPES OF SEARCH PATTERNS

### Line Search

**7030.** Two types of line search may be used depending on the number of personnel available. These are described below and illustrated at Annexes E and F.

a. Parallel Sweep; used where there are sufficient searchers available to cover the entire search area with one pass.

b. Creeping Line Ahead; used when there are not enough members to employ the parallel sweep method.

### Fan Search

**7031.** The fan pattern is used when the search party is trying to cut a trail line or similar type of clue. The searchers start from a known fixed position, which forms the base mark, (like the hub of a wheel), and move away from away from it for a pre-determined distance (may be measured by pacing), and then moving in a clockwise direction, again for a given distance, before returning to the base mark. This process, as shown in Figure 3, is repeated until all the required ground has been covered.

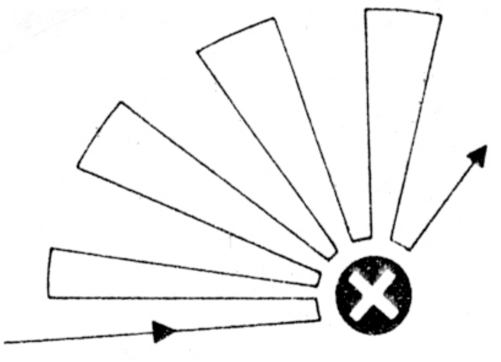


*Figure 3 - Fan Search Pattern*

## Watercourse Search

**7032.** When searching along rivers or creeklines, the party moves upstream along one bank of the watercourse, making sure that all tributaries are included, to the headwaters of the system and then proceeds downstream along the other bank, as shown in Figure 4.

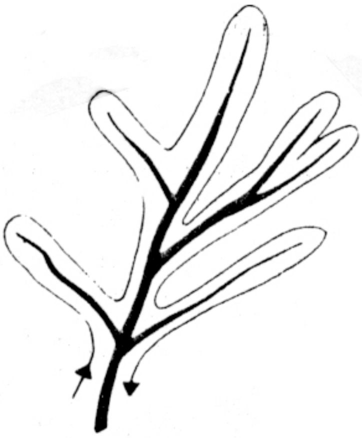


*Figure 4 - Watercourse Search Pattern*

## RESCUE AND RECOVERY TECHNIQUES

### Helicopter

**7033.** Helicopters are used extensively throughout Australia for business, cattle mustering, television crews, mining, the list is almost endless. Because of the convenience, speed and availability, it is therefore, highly likely that a helicopter will be the means used in most rescue operations and around the capital cities especially equipped rescue 'choppers' are a common sight. The preferred method of rescue is for the helicopter to land and take off the survivors and to do this a suitable landing place (LP) will need to be found. This can sometimes be done by the pilot but it is much better if the LP can be sited and prepared from the ground, provided the survivors know what the requirements are.

### Selecting the LP Site

**7034.** A natural open clearing or a cleared paddock makes the ideal site, requiring little or no preparation. In close country, the clearing of an LP on flat ground will take a huge amount of time and effort. Look for a high feature like a ridge or spur line, so that if you need to cut down any tall trees, they will fall down the slope away from the cleared area. An alternative is to look along the banks of rivers where annual flooding will often provide cleared areas.

### Preparing the LP

**7035.** The actual landing pad (where the aircraft touches down) should be a hard packed area of no less than 15 metres in diameter. Around this should be cleared to ground level out to a diameter of 25 metres and then a further 5 metres cut to a height no more than 60 centre metres; a total of 30 metres diameter in all. In close country, an approach path to the landing pad will also need to be cleared. This means trimming the vegetation on a consistent angle of 15% from the centre of the pad in the direction of the approach. Remember that the pilot will want to approach the landing into the prevailing wind. Mark the touchdown point clearly with the letter **H**. Preparation specifications are shown at Figure 5.

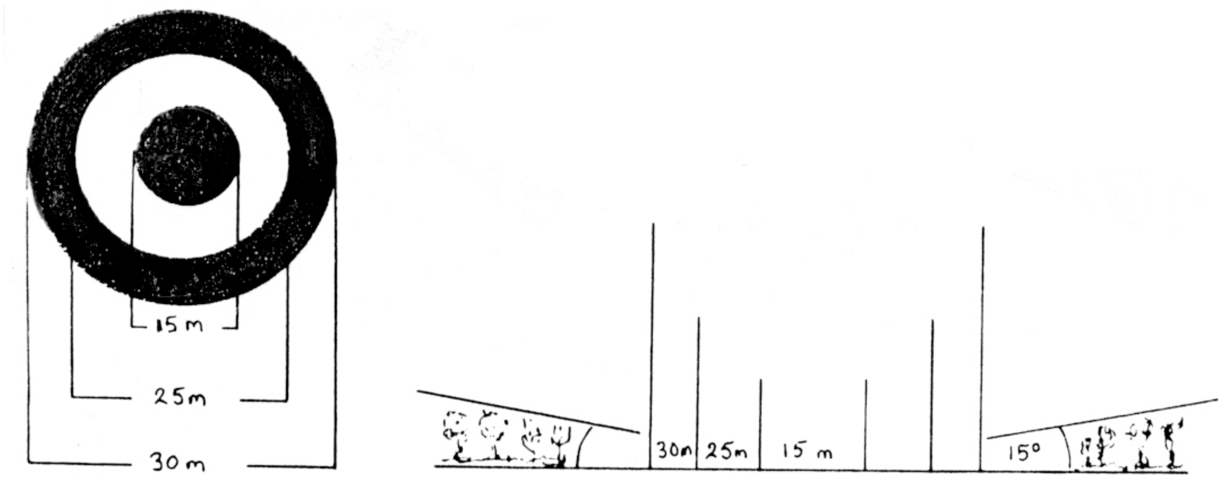


*Figure 5 - Preparation of a Helicopter LP*

**Wind Indication**

**7036.** As stated above, the approach will be into the wind and the direction and strength must be indicated to the pilot from the ground. The most effective method is to use flares or a smoky fire, however, these must be placed in such a position so as not to interfere with the pilot's vision. If a fire isn't possible, you can indicate wind direction with the letter **T**. The way to place the T is shown in Figure 6 which is also the method used to mark the LP at night. A point to note here for night operations is, if torches are to be used, once the initial contact with the pilot has been made and the approach commenced, the torches should then be pointed at the ground so as not to dazzle the pilot. Remember that the helicopter has its own landing lights to illuminate the pad.

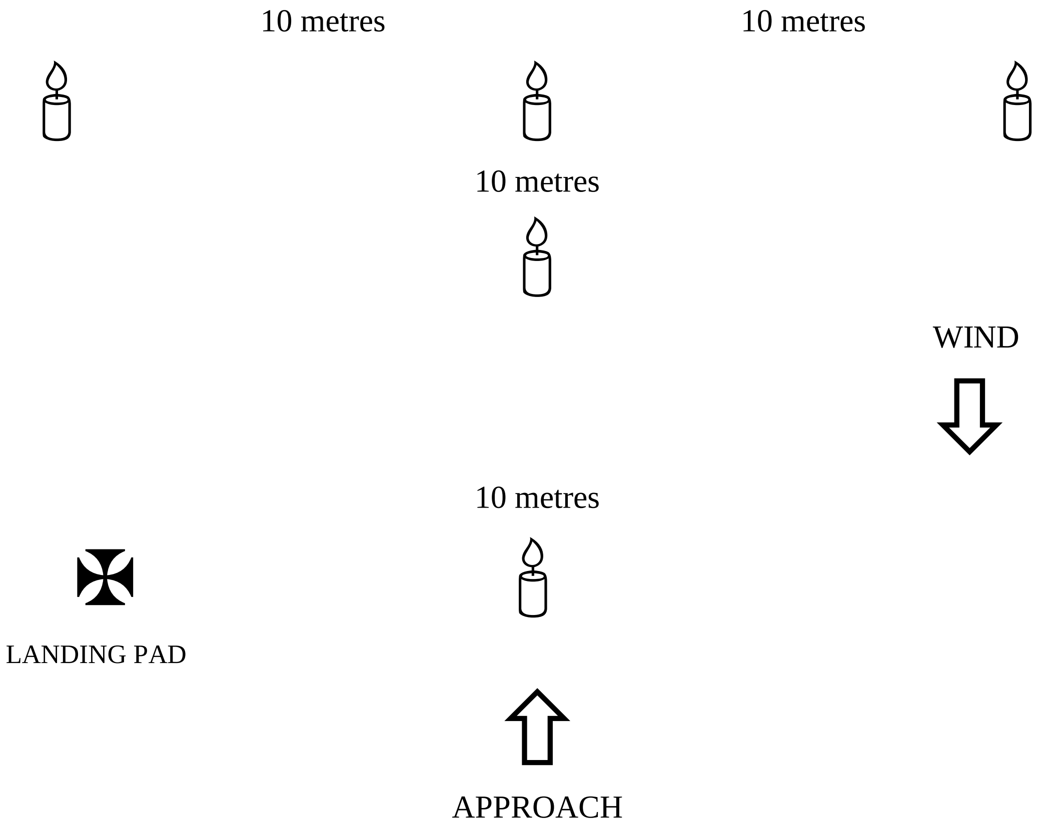


*Figure 6 - Wind Indication/ Marking an LP at Night*

## Recovery By Winch

**7037.** Military and Rescue helicopters are fitted with a winch which enables them to effect rescue in conditions that prevent the aircraft from landing. The rescue strop is attached to the winch hook and lowered to the survivor. Sometimes a crewman will be lowered to direct operations from the ground, but if this isn't the case, simply place the strop over your head and under your armpits. When you are ready for winching, extend your arms with thumbs up, to signal the crewman to commence. Keep your arms below shoulder level throughout the operation, lifting them will cause you to slip out of the strop. One type of rescue strop and method of winching are shown at Figure 7.

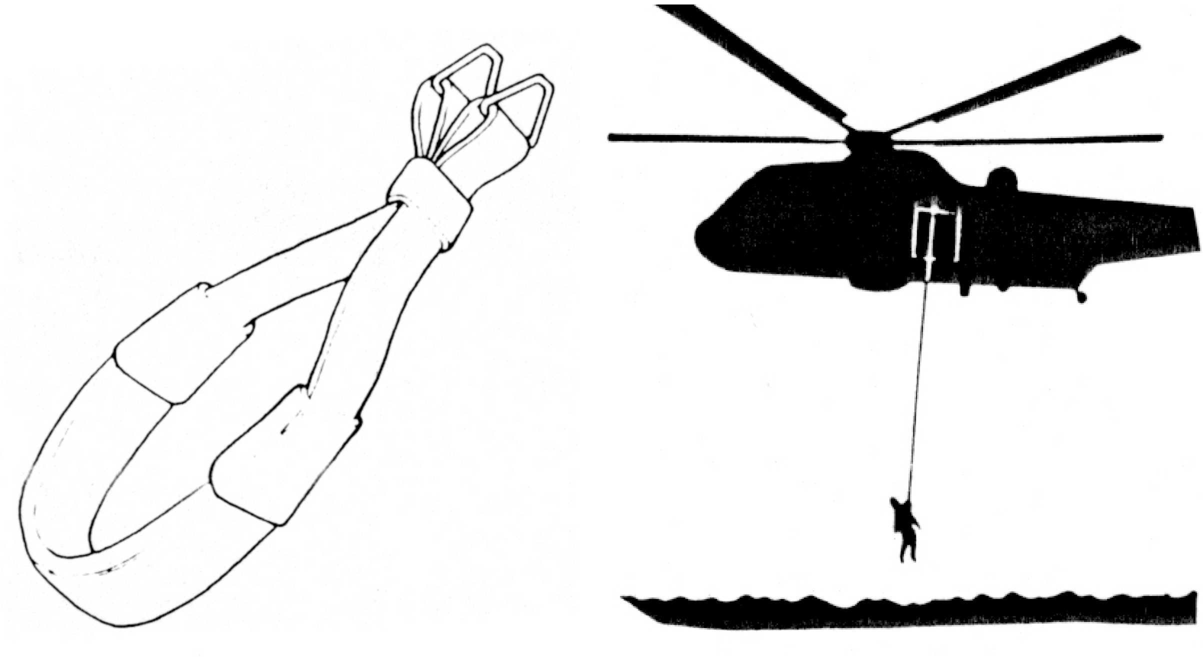


*Figure 7 - Helicopter Winch Rescue*

## Helicopter Safety Precautions

**7038.** When operating with a helicopter, the following precautions must be observed and their importance stressed upon those people who have no previous helicopter experience:

a. Stand at the up-wind end of the LP with your back to the wind. After the helicopter has landed, the crew will signal you to approach. **Enter** from the front of the aircraft within an arc of about 45% either side of the pilot's position so that you can be kept in view by the crew. Never approach from the rear as you may walk into the tail rotor.

b. If the LP is on sloping ground, approach from the up-hill side so that you come up underneath the main rotor and not down through the blades.

c. Ensure that you aren't carrying anything (radio antenna or sharp objects) that may damage either the rotor or the body of the helicopter.

d. When on board, the crew will instruct you in what to do, where to sit and strap you in. Remain in that position throughout the flight and do not un-buckle or alight until instructed to do so.

**ANNEX A TO**
**SVA 7**

# VICTIM INFORMATION SHEET

DATE:

| | VICTIM | INFORMANT | WITNESS |
|---|---|---|---|
| NAME | | | |
| ADDRESS | | | |
| PHONE No | | | |

Number Missing ____________________

Locality ____________________

Destination ____________________

Purpose ____________________

PHYSICAL DESCRIPTION

Age ____________________

Sex ____________________

Race ____________________

Height ____________________

Build light medium heavy

Complexion light medium dark

Eye colour ____________________

Hair colour ____________________

Identifying Marks ____________________

HEALTH

Vision glasses ____________________

Hearing Aids ____________________

Smoking, Brand ____________________

Sweets, Brand ____________________

Drugs ____________________

Alcohol ____________________

Illness ____________________

Medications ____________________

Emotional State good average poor

Nutritional State good average poor

Constitution good average poor

Field Experience good average poor

DRESS Summer Winter

Hat type/colour ____________________

Coat type/colour ____________________

Shirt type/colour ____________________

Pants type/colour ____________________

Socks type/colour ____________________

Underwear type/colour ____________________

Shoes type ____________________

colour ____________________

size ____________________

Sole Pattern/age ____________________

EQUIPMENT

Food type ____________________

amount ____________________

wrapping ____________________

Fluids type ____________________

amount ____________________

container ____________________

Flashlight type ____________________

Battery size ____________________

Sleeping Bag ____________________

Pack ____________________

Tent ____________________

Stove ____________________

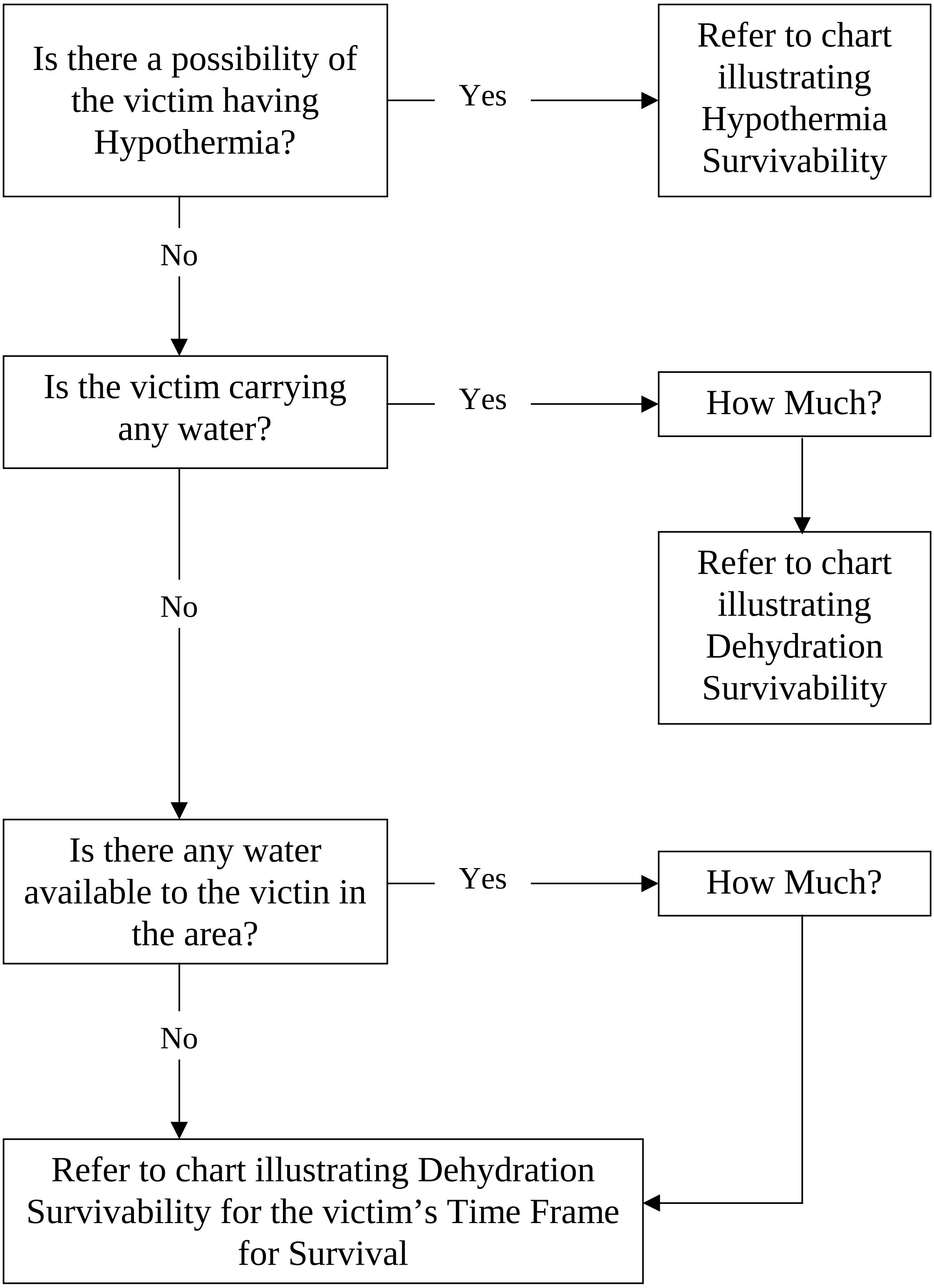
Knife ____________________

Other ____________________

____________________

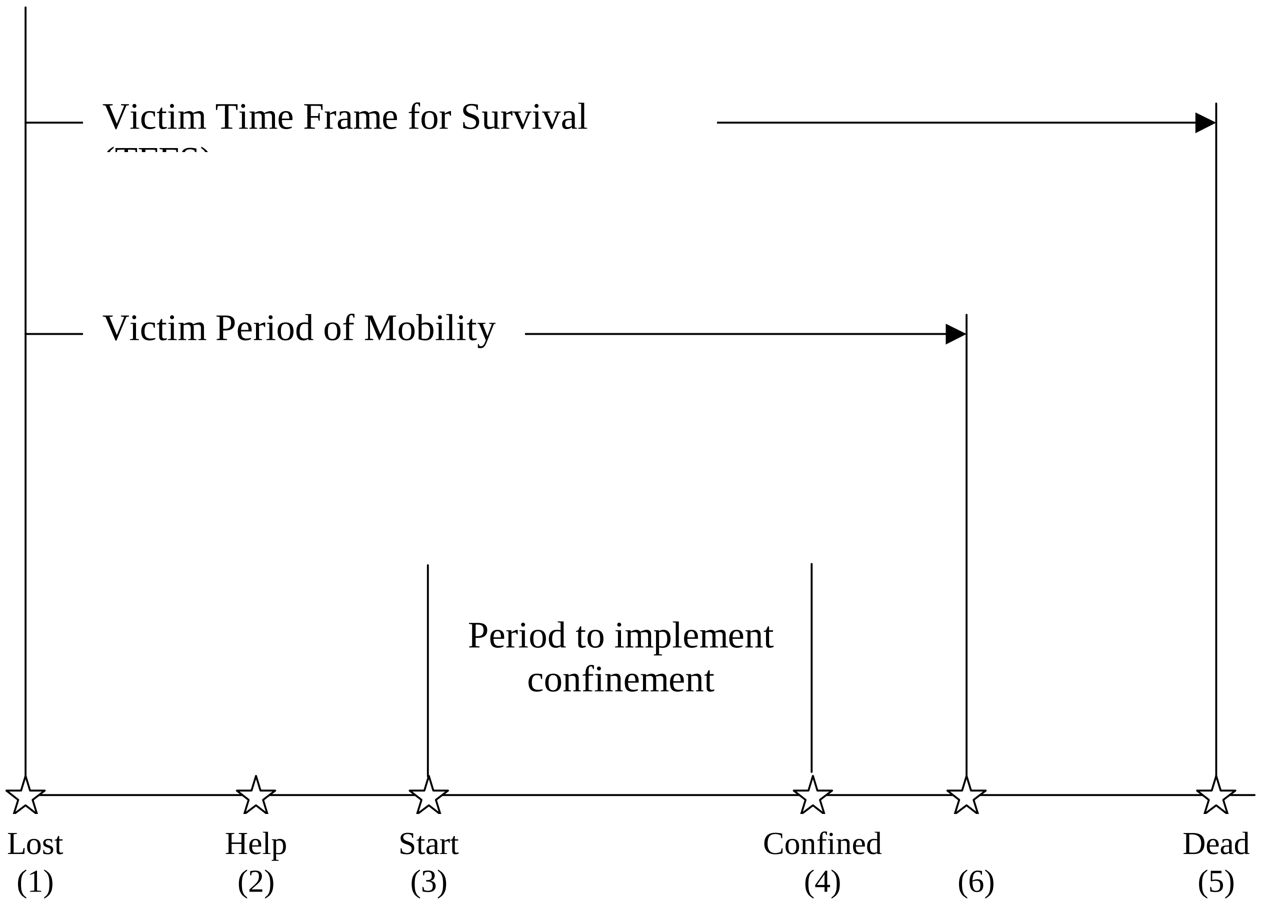
**ANNEX B TO**
**SVA 7**

## TIME FRAME FOR SURVIVAL


Is there a possibility of the victim having Hypothermia?
Yes
Refer to chart illustrating Hypothermia Survivability
No
Is the victim carrying any water?
Yes
How Much?
Refer to chart illustrating Dehydration Survivability
No
Is there any water available to the victin in the area?
Yes
How Much?
No
Refer to chart illustrating Dehydration Survivability for the victim's Time Frame for Survival

**ANNEX C TO**
**SVA 7**

# SEARCH AREA TIME SCALE


Victim Time Frame for Survival
Victim Period of Mobility
Period to implement confinement
Lost (1)
Help (2)
Start (3)
Confined (4)
(6)
Dead (5)

**Notes**

(1) Lost The victim was lost at approximately 1600 hours, 21 October 1984.

(2) Help Appropriate authorities were notified at 0700 hours, 22 October 1984.

(3) Start Search teams arrived at 1300 hours, 22 October 1984.

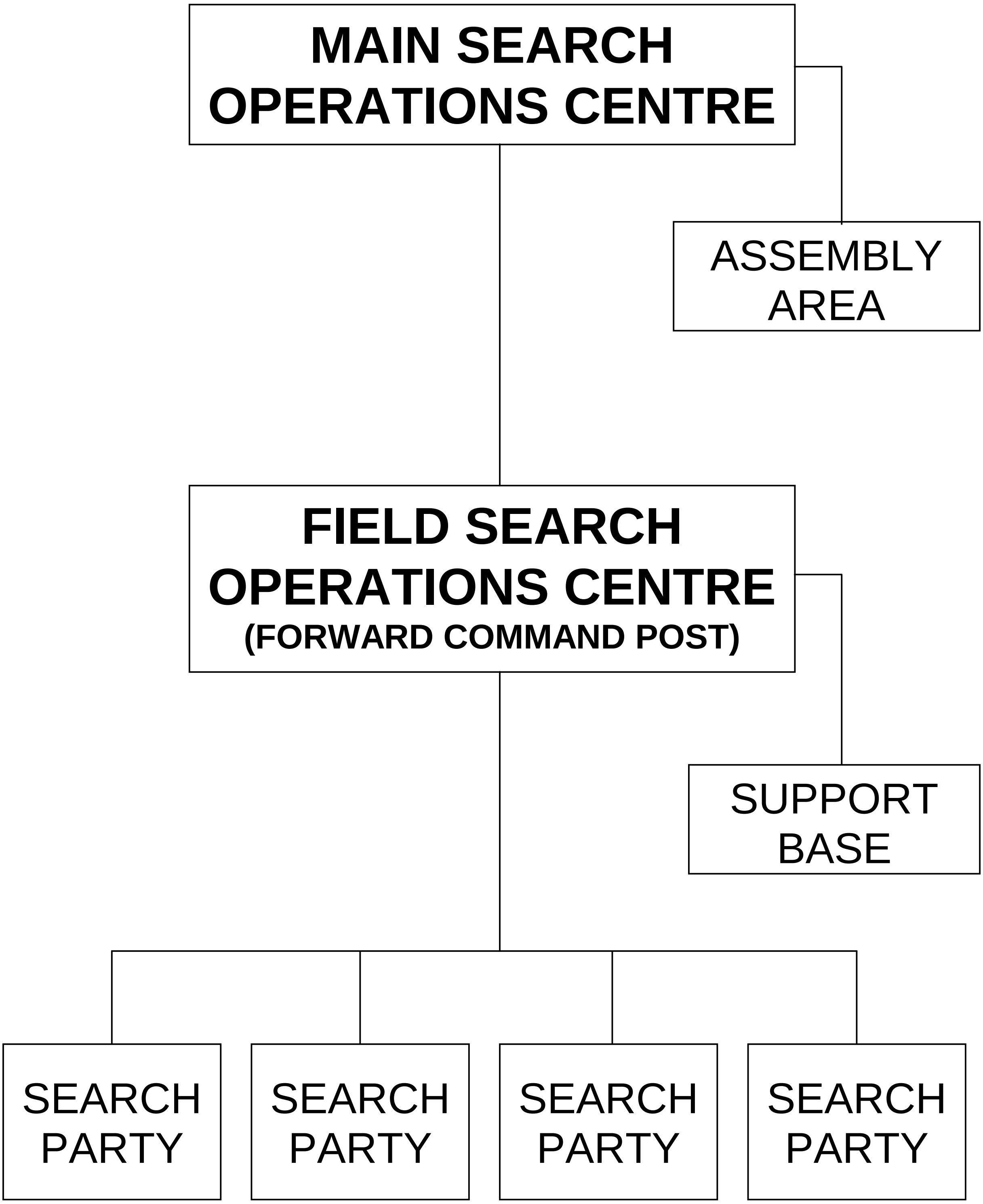
(4) Confined The victim has been confined to a specific area by the type of terrain and/or search teams. This is completed by 0800, 23 October 1984.

(4) Dead The victim's Time Frame for Survival is 72 hours, and must be found by 1600 hours, 24 October 1984.

(6) Period of Mobility will be approximately 2/3rds of the Time Frame for Survival, or 48 hours.

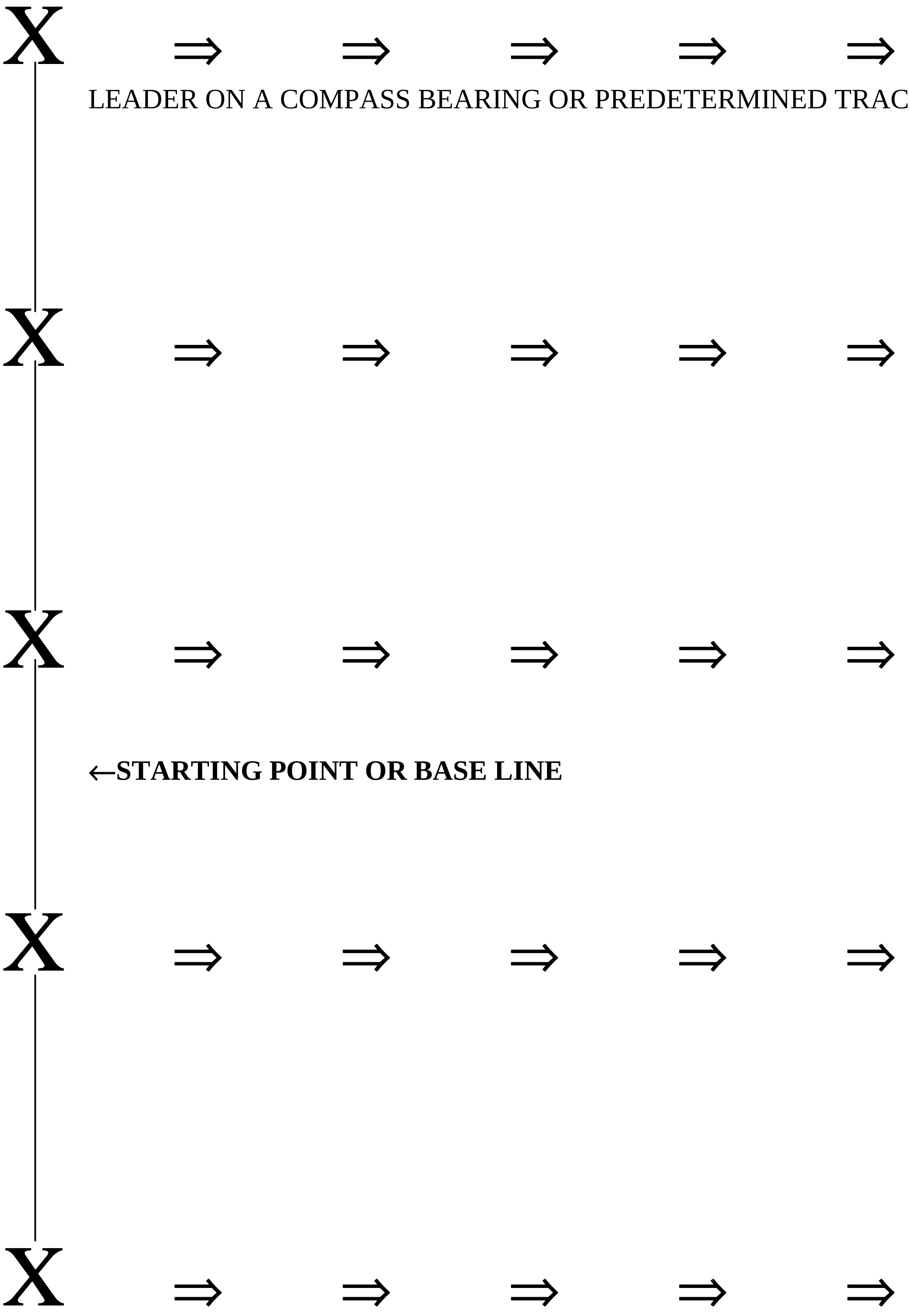
**ANNEX D TO**
**SVA 7**

## SEARCH ORGANISATION FLOW CHART


MAIN SEARCH OPERATIONS CENTRE
ASSEMBLY AREA
FIELD SEARCH OPERATIONS CENTRE (FORWARD COMMAND POST)
SUPPORT BASE
SEARCH PARTY
SEARCH PARTY
SEARCH PARTY
SEARCH PARTY

**ANNEX E TO**
**SVA 7**

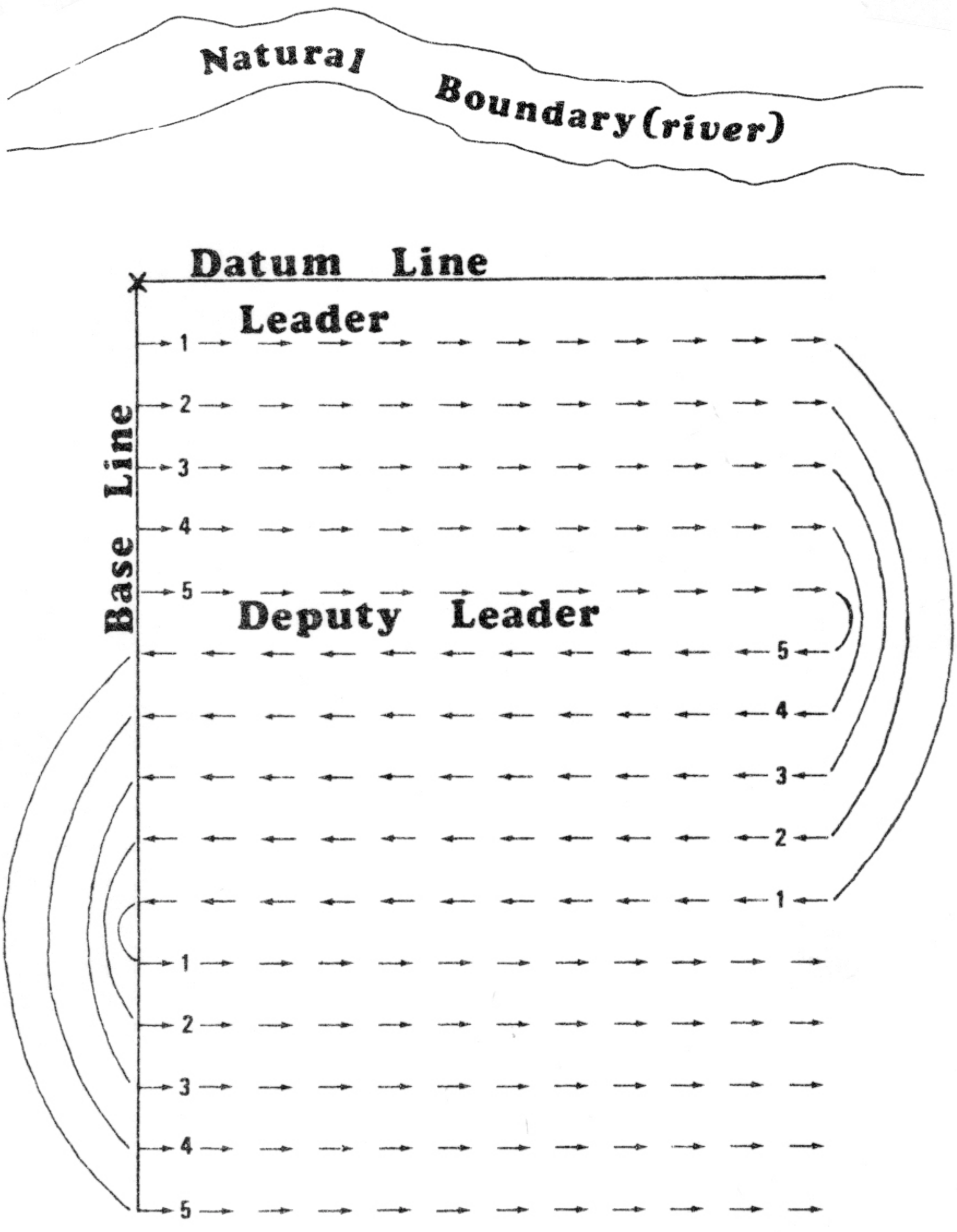
## PARALLEL SWEEP SEARCH PATTERN


LEADER ON A COMPASS BEARING OR PREDETERMINED TRACK
←STARTING POINT OR BASE LINE

PARALLEL SWEEP SEARCH

**ANNEX F TO**
**SVA 7**

## CREEPING LINE AHEAD SEARCH PATTERN



*CREEPING LINE AHEAD*